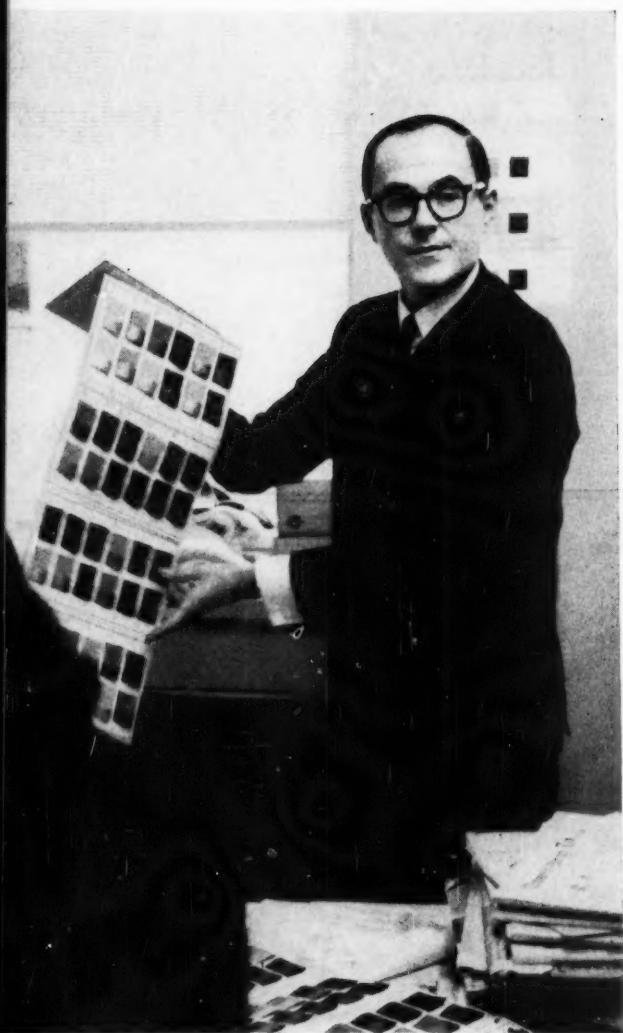


A M C G R A W - H I L L P U B L I C A T I O N

Chemical Week



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Fashioning a new idea in fiber selling . . p. 47

Too much PVA? Capacity exceeds demand—but new markets are in sight . . p. 53

New plate-and-frame filter features short cycle, extra-fast filtration p. 79

October 31, 1959

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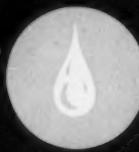
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- **Why shift headquarters?** Move out of New York City makes sense to American Cyanamid p. 39
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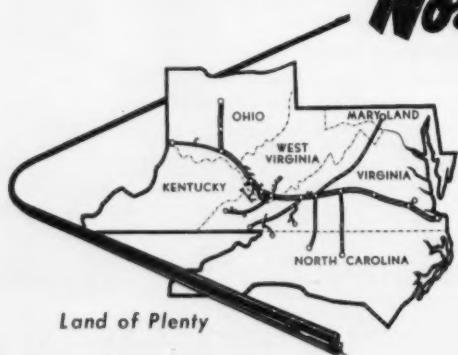
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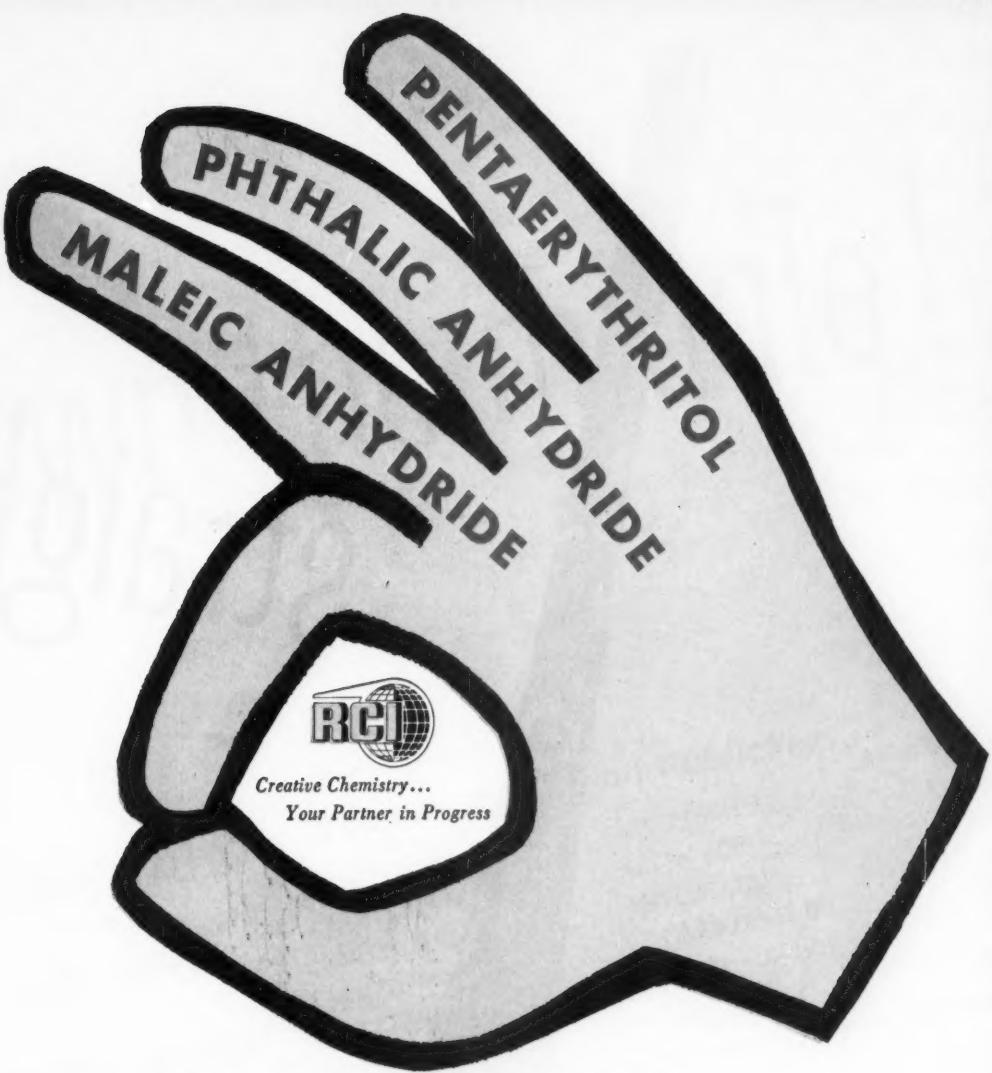
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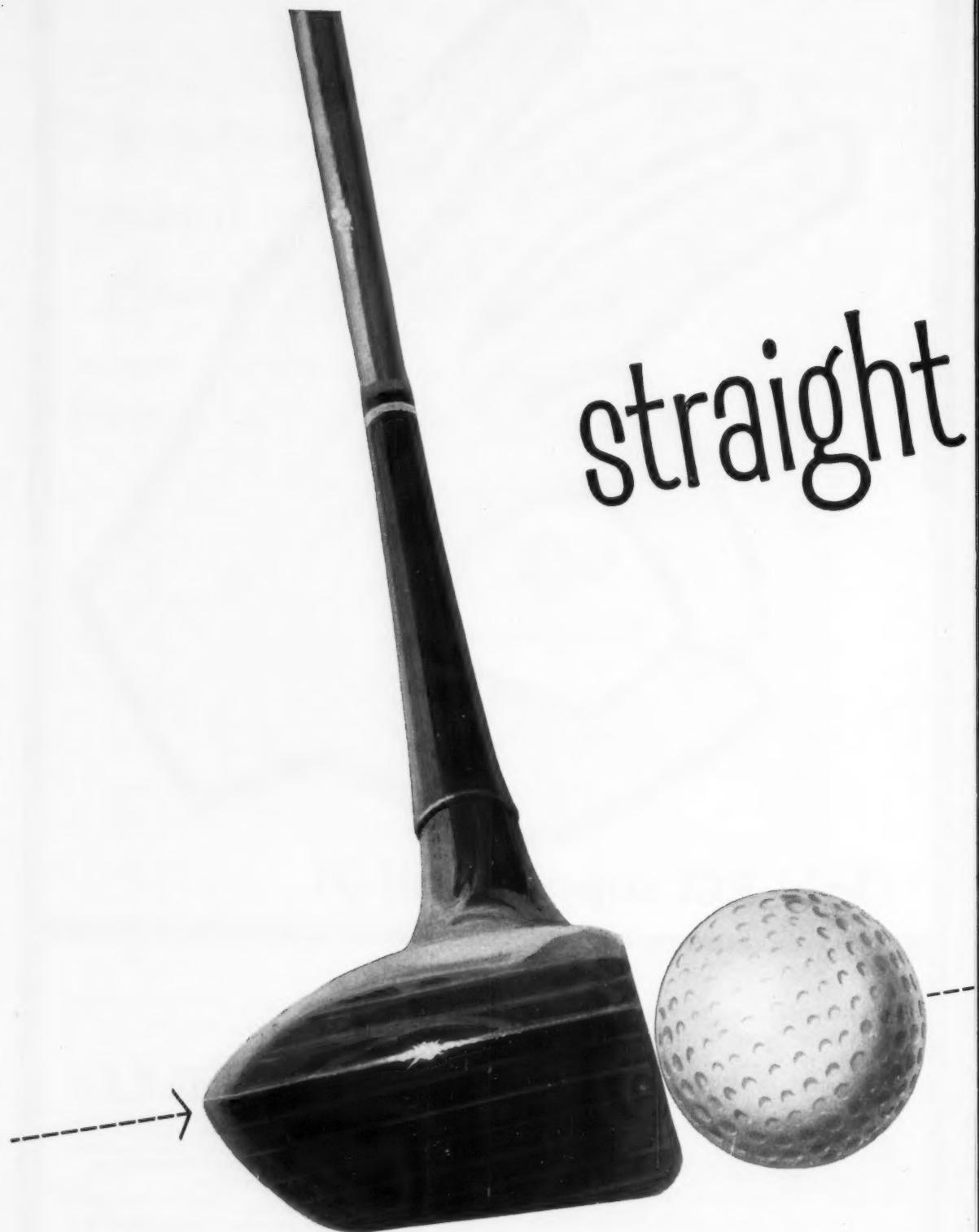
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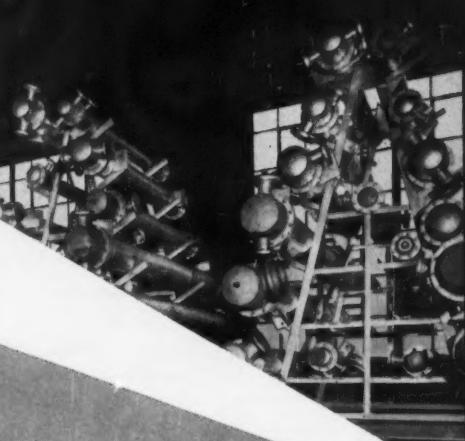
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VIEWPOINT

A study of how to remove the barriers to chemical trade between the United States and Canada was advocated last week in Montreal by MCA Board Chairman and Merck President, John Connor.

His analysis of current trends of U. S. and Canadian trade is something of importance to all of us. And an exploration of ways to increase the interchange between our countries is certainly worthwhile. Herewith, highlights of his speech:

BECAUSE the early postwar enthusiasm for the cause of freer international trade has been channeled in the direction of creating closer-knit and inward-looking regional trading arrangements, I would like to suggest that the time has come when the trade between the chemical industries in Canada and the United States should no longer be conducted on a multilateral, most-favored-nation basis. Rather, I suggest that we in the chemical industries of our two countries examine the possibilities of operating on a bilateral basis, with preferential and exclusive treatment being given to each other on tariffs, quotas and other trade restrictions.

Naturally, our two countries have extended to each other the tariff concessions made under multilateral programs during the postwar period. In addition, a very substantial proportion of total transborder trade moves duty-free between Canada and the United States.

But the competitive situation for both Canada and the United States is now changing rapidly; low-cost-producing countries are beginning to dominate markets with products priced far below the minimum levels necessary for Canadian and United States producers.

U.S. exports have declined approximately 30% in the past 18 months. Had it not been for the foreign economic aid program and heavy export subsidies, the decrease would have been greater. There is only one other country of first rank in world trade that is beginning to experience the same difficulty — Canada.

But exports are only part of the story. Equally critical, if not more so, is the threat developing in our home markets. Sales in the United

States by domestic producers of bulk medicinal chemicals such as vitamins, and antibiotics such as penicillin and streptomycin, have suffered badly during the last 18 months.

Canadian manufacturers suffer in a similar way. Merck & Co., Ltd., our Canadian subsidiary, for example, built a plant two years ago to produce niacin. Even today, the imports our competitors made before we received tariff protection are not yet completely sold. Meanwhile, our plant has been half-idle.

Our problems in exporting, plus the emerging problem of much greater home-market competition from low-labor-cost countries, pose serious long-range threats to the basic economic structure of Canada and of the United States.

We can approach these problems in either of two ways: We can continue to adjust tariff levels upward at any point where import competition becomes significant, adopt all known, time-honored protective devices.

We can, on the other hand, try to meet head-on the new competition arising in the Soviet Bloc, the European "Common Market," the Outer Seven, the Latin-American Bloc, and other present or prospective regional trading groups by attempting to work out our own bilateral approach.

As a first stroke, I suggest the possibility of having the chemical industry in Canada and the United States establish a top-level committee to sponsor and guide a study of means for removing chemical trade barriers of all kinds, on an exclusive and bilateral basis.

It will take a great deal of time, of course, to come up with any sensible proposals that would receive general support within our respective

chemical industries, and then be worked out by our governments.

Until then, there would certainly be no intent to interfere, for example, with the current study of Canadian chemical classifications and tariff rates.

We also recognize that in some cases the Canadian chemical industry may need short-term protection against the competitive cost advantage possessed by the U.S. chemical industry with its larger capacity.

I am convinced that formation of a study group now has distinct advantages. For one thing, it would give our industry a headstart on eventual consideration of the question by our governments. I, for one, am fed up with our current practice of coming into intergovernmental discussions at the eleventh hour shouting tired slogans, but having all too few facts.

Specifically, the group could try to determine what tariffs affecting chemicals could be lowered or eliminated with advantage to both countries. It could also look at the various classifications of chemicals in both countries to see if more uniformity is possible. At the same time, it might take a realistic look at the tariffs applied to chemical and pharmaceutical products imported into Canada and the United States to the detriment of domestic producers.

The existence of such a study group would also have the advantage of providing an immediately available forum where combined actions could be decided upon.

Then, too, there are important benefits to be derived by the chemical industry from initiating a study project that would inevitably result in the increased knowledge and understanding of each other's problems and opportunities.

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OPINION

Cellulose Report

To the EDITOR: I wish to congratulate CHEMICAL WEEK on another job well done. I refer to your excellent feature article on cellulose (Aug. 29, p. 53). . . . I was nevertheless disappointed by your omission of a new and rapidly growing area of chemical cellulose consumption. This is the area of cellulose ion-exchange chromatographic chemicals.

Chemically modified celluloses have been used successfully in the separation and purification of many different proteins, polypeptides, nucleotides, enzymes, nucleic acids, antibiotics, hormones, bacteriophages, a virus and other complex macromolecules. Most of the materials mentioned could not be satisfactorily separated or purified by other conventional techniques. . . .

Cellulose exchangers have already proved their value in the research lab; their industrial possibilities are, as yet, largely unexplored. We feel that cellulose exchangers will play an important role in pharmaceutical manufacturing, in edible oils refining, in concentrating and purifying biological by-products of the meat packing industry, and in many other bulk applications.

STANLEY N. GOLD
Cellex Division
Bio Rad Laboratories
Richmond, Calif.

To the EDITOR: Re CHEMICAL WEEK's issue of Aug. 29, deep in what southern forest do trees as large as those pictured on p. 53 grow?

R. E. MORRISON
177 White Plains Rd.
Tarrytown, N. Y.

Southern Oregon, southern Washington, southern British Columbia.—ED.

MEETINGS

Farm Chemicals Marketing Seminar, Barbizon-Plaza Hotel, New York, Nov. 16-17.

American Rocket Society, annual meeting, Sheraton-Park Hotel, Washington, D.C., Nov. 16-20.

Manufacturing Chemists' Assn., 9th semi-annual meeting and midyear conference, Statler Hilton Hotel, New York, Nov. 24.

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Petroleum is like many other products, spending some part of its life in a steel shipping container. A wide variety of products arrive at their destinations stable, safe, sanitary, in carbon or stainless-steel shipping containers that are manufactured by United States Steel.

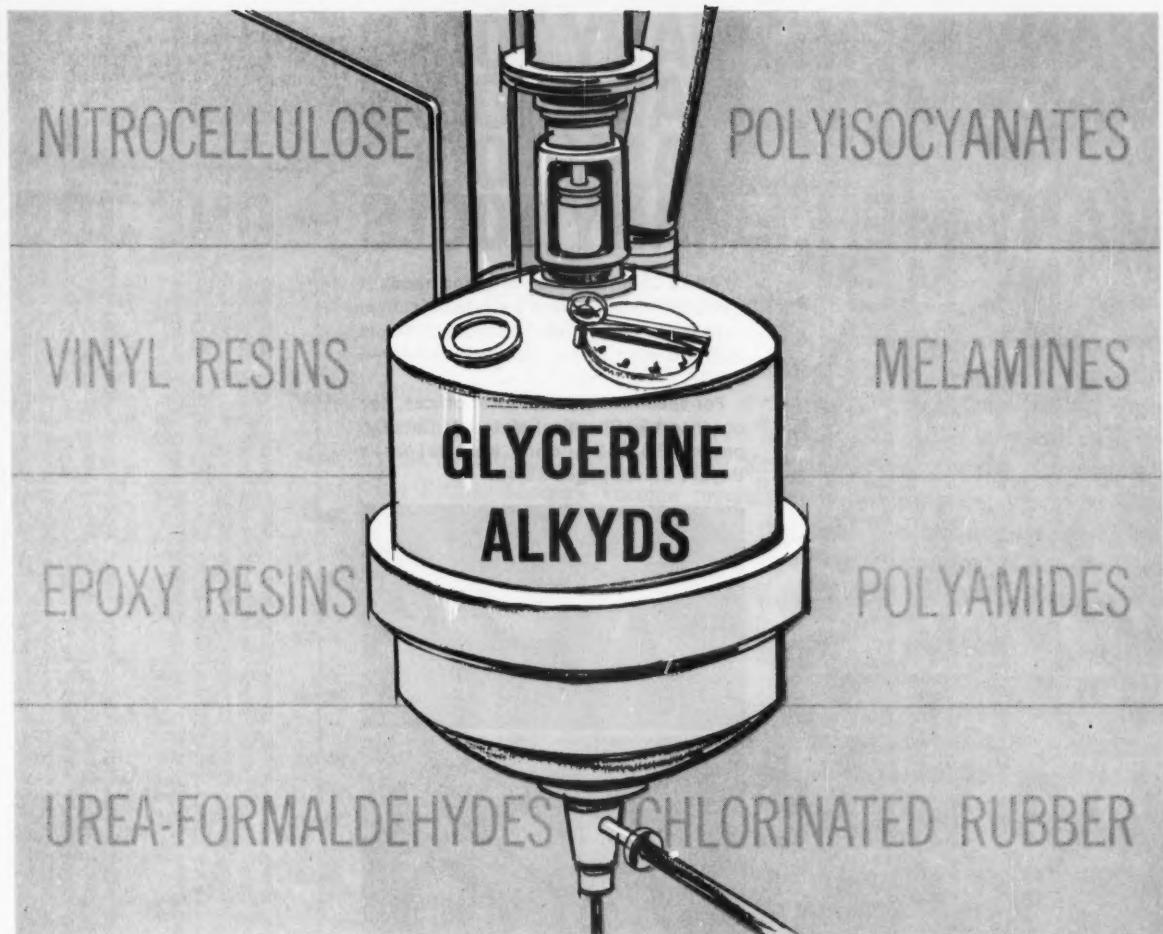
USS steel drums and pails come in a variety of sizes and closures, offering flexibility in choosing a shipping

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sion and durability are improved—broadening an already wide spectrum of alkyd resin properties.

Glycerine is stable in price, dependable in supply. It offers a unique range of advantages for alkyd resins. We'd like to send you our new booklet, "Glycerine Properties • Reactions • Performance." Address your request to the Glycerine Producers' Association.

Properties

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- SOLVENT POWER • VISCOSITY
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ADVANTAGES THAT COME WITH
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Applications

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For specifications and local offices, see our insert in Chemical Materials Catalog, pages 435-442 and in Chemical Week Buyers Guide, pages 35-42.



**BASIC TO
AMERICA'S
PROGRESS**

Allied
Chemical

NITROGEN DIVISION

Business Newsletter

CHEMICAL WEEK
October 31, 1959

The current run of litigation against drug companies won't make it easier for the industry at the Kefauver committee's probe, slated to start Dec. 7 in Washington.

At the trial in Trenton, N.J., of five polio vaccine producers on conspiracy and price-fixing charges, the government late last week won the right to introduce cost data, forcing an important wedge into the defense. Judge Phillip Foreman overruled (1) a defense objection to presentation of cost data and (2) a request to strike out testimony on costs by Pitman-Moore President Kenneth Valentine and a memo showing Pitman-Moore's vaccine production costs. Foreman ruled that "the government has the right to probe the state of mind" of pricing officials and to take cost into account. But his ruling does not set a precedent for future introduction of cost documents. Each must be considered separately.

The defendants admit "disparity" of costs, but assert this is irrelevant to the question of whether the companies conspired to fix prices. Prosecutor Lewis Bernstein asserts the documents will show that the degree of disparity was so great that the companies could have set any number of prices and made a fair profit. The documents will also show, he said, what elements entered into setting prices.

Meanwhile, the complex story of tetracycline pricing is continuing at the Federal Trade Commission's hearing in New York. And it now appears that this story may not be fully told for months to come, since it's doubtful that oral testimony can be completed before Christmas. Also, Hearing Examiner Robert Piper will preside over another important FTC hearing in January. And if the tetracycline hearing can't be wound up in February, it might have to hang fire until '61, because Piper is scheduled for still other FTC business all the rest of '60.

And drug prices are at the root of eight suits filed against drug-makers in Ohio last week. In challenging the state's "fair trade" law, which has just gone into effect, retailers brought the actions against three drug firms—Lilly, Squibb and Upjohn—that are trying to enforce fair-trade suits, which are still pending.

Dow is expanding at home and abroad. At Bay City, Mich., Dow is setting up its new Saginaw Bay Division to group its Bay Refining Co., acquired in '56, with two plants now coming onstream: the Bay City Petrochemicals plant (ethylene, butadiene, etc.), and the Bay City Polymers complex (polyethylene and polypropylene).

And Dow will take the next step in its \$25-million/year overseas investment program with a polystyrene plant in Greece—the first in that "developing" country. Raw materials will be imported, with output

Business Newsletter

(Continued)

slated for domestic consumption and export. Plant cost: "in excess of \$1 million." Operations are slated to get under way in early '61.

•
Low-cost chemical treatment of fabrics may be the key to "unprecedented progress" in the textile industry, says B. F. Goodrich Chemical Co.

At its week-long New York trade show of products and processes for improving physical properties of fabrics, Goodrich spokesmen pointed ahead to a time when new chemicals and production methods could make it possible "to produce outerwear inexpensive enough to be thrown away when wrinkled."

Goodrich says it's developing a new acrylic latex that may make possible "expansion of nonwovens, such as felt, into the outerwear field." And "denim, nonwovens, calico and broadcloth could be turned into products outshining the 'miracle' fibers." Goodrich hopes to claim a \$50-million share in '59's estimated \$400-million market for textile chemicals.

•
There's quickening interest in phosphate mining in northern Utah. Competitive bidding on potential phosphate land packets in northwestern Utah is slated for Dec. 9-10. Bids on more than 5,000 acres in the Uinta Mountains (Townships 2 North and Range 20 East) will open in Salt Lake City's federal land office. And G. Donald Emigh, Monsanto's director of mining, said in Salt Lake City that, since 1944, the Intermountain West has increased phosphate rock production eight times, while output in the rest of the nation has only doubled.

•
Scratch out the CPI census figures published last week (*CW*, Oct. 24, p. 27). They're in error, due to a clerical slip. The right figures for CPI plants with 20 or more employees: Ohio, 932 plants, 267,387 employees; Pennsylvania, 794 plants, 225,941 employees; New York, 950 plants, 226,380 employees; New Jersey, 824 plants, 187,707 employees; Illinois, 1,002 plants, 166,042 employees; California, 986 plants, 159,173 employees; Texas, 562 plants, 131,019 employees; Indiana, 267 plants, 107,180 employees; Michigan, 496 plants, 106,204 employees; Massachusetts, 482 plants, 96,805 employees; Tennessee, 223 plants, 82,340 employees; Maryland, 188 plants, 68,446 employees; Wisconsin, 297 plants, 64,124 employees. *CW* will publish the complete census within the next few weeks.

•
Two big expansions: Copolymer Rubber & Chemical (Baton Rouge, La.) will spend \$3 million on its Carbomix rubber—synthetic rubber with carbon black added in the latex stage. It will enlarge pilot-plant and warehouse facilities to 125,000 tons/year capacity; present capacity, 49,000. And Flintkote Co.'s newly acquired Calaveras Cement Co. will be expanded shortly. First move: a new plant in northern California. Flintkote has absorbed 11 firms, doubling sales to \$200 million.



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chemicals
for cosmetics**

Looking for better water solubility . . . higher viscosity . . . improved dispersing action . . . tolerance for metallic salts . . . more body, stability and longer shelf life? Whatever your formulation needs, it's more than likely that one, or a combination, of CARBIDE's chemicals for cosmetics can supply the answer.

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CHEMICALS COMPANY**

DIVISION OF  CORPORATION

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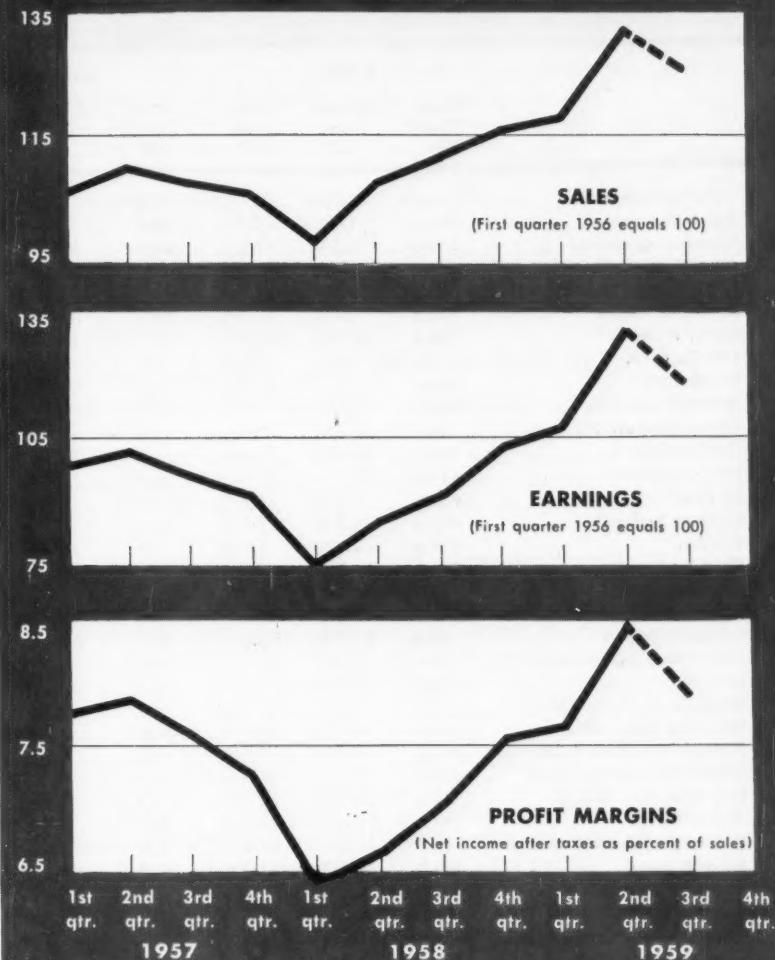
Louisville Dryers
CORPORATION

Chemical Week

October 31, 1959

Mainly as a result of the steel strike, sales of chemicals and allied products are subsiding—but are nevertheless higher than in any previous period except this year's second quarter. As usual in a downturn, profits are off more sharply than sales—the corollary of production slipping below optimum operating rates. This is clearly reflected in the relatively steeper dips of CW's earnings and profit margin indexes.

CW Index of Chemical Industry Sales and Earnings



Chemical Profits Feel Steel's Bite

It's still a good bet that most U.S. chemical companies will post higher-than-ever 12-month sales and earnings totals this calendar year.

But a downward trend is continuing; and many chemical executives now feel that the chain-reaction effects of the 3½-month steel strike will still be noticeable in business operations for the next five or six months — even if the big steel mills are back in production within the next week or so.

Chemical companies' financial statements out last week generally report nine-month sales and earnings at new peaks (table, p. 22). But closer inspection reveals that most of the bulge in turnover and profits came during the first two quarters.

In the third quarter, sales volume

for numerous companies was down by 5-10% from second-quarter summits (*chart, above*), and with production slumping in many steel-related industries that are also important consumers of chemicals, it's likely that chemical sales will drop again in this fourth quarter.

How soon the snap-back will come, and how sweeping it will be, are highly speculative. Even with a Taft-Hartley injunction, it would take a week or so before the big steel mills could again start making shipments to customers.

And if steel management and union leaders are still deadlocked on settlement terms, it's to be expected that steel production will start dipping again before the end of the injunction's 80 days as producers gradually

cool the blast furnaces preparatory to another indefinite shutdown.

Few Escape Unscathed: The impact of the steel strike — also that of the threatened work stoppage in railroading — will, of course, vary considerably among CPI companies, depending on product lines, plant locations, and seasonal factors in agriculture and other industries.

But the steel strike's effects have been mounting to such proportions that few process companies will escape untouched.

Even pharmaceutical companies expect to be affected; they've learned that when the breadwinner is out of work, a family is likely to cut down on vitamins. And the U. S. Dept. of Labor has warned that the rate of unemployment in various industries

	SALES			EARNINGS			PROFIT MARGINS		
	9-mo. Total '59	Change from '57	Change from '58	9-mo. Total '59	Change from '57	Change from '58	First 9 mos. '59	First 9 mos. '57	First 9 mos. '58
Abbott Laboratories	95.0	13.2%	4.7%	10.5	8.2% ⁽¹⁾	3.0%	11.1%	11.6%	11.3%
Allied Chemical	546.7	4.9%	15.4%	39.7	20.8% ⁽¹⁾	72.6%	7.3%	6.3% ⁽¹⁾	4.9%
American Cyanamid	442.0	12.7%	13.8%	40.0	10.7%	43.4%	9.1%	9.2%	7.2%
American Enka ⁽²⁾	76.7	81.5%	80.4%	5.3	675.2%	3,331.2% ⁽¹⁾	6.9%	1.6%	0.4%
American Potash & Chemical	41.2	26.3%	15.8%	3.8	7.0%	20.6%	9.2%	10.9%	8.9%
American Viscose	185.3	7.4%	19.8%	11.2	49.3%	288.1%	6.0%	4.3%	1.9%
Carter Products ⁽³⁾	29.7	35.5%	25.2%	5.0	89.3%	56.8%	16.9%	12.1%	13.5%
Catalin Corp.	17.0	-7.8%	10.9%	0.1	-70.5%	-22.5%	0.6%	2.0%	0.9%
Chemstrand ⁽⁴⁾	154.9	—	29.9%	20.9	—	78.3%	13.5%	—	9.8%
Colgate-Palmolive	440.5	13.5%	9.2%	18.1	25.1%	22.4%	4.1%	3.7%	3.7%
Cutter Laboratories	16.3	23.5%	12.9%	0.9	75.1%	44.5%	5.8%	4.1%	4.5%
Diamond Alkali	102.3	10.2%	21.1%	8.3	35.2%	107.9%	8.1%	6.6%	4.7%
Dow Chemical ⁽⁵⁾	191.7	15.3%	21.9%	22.3	57.9%	99.8%	11.6%	8.5%	7.1%
Du Pont ⁽⁶⁾	1,612.0	7.8%	21.8%	229.0	12.5%	73.1%	14.2%	13.6%	10.0%
Eastman Kodak ⁽⁷⁾	621.8	14.8%	12.8%	87.5	33.3%	37.6%	14.1%	12.1%	11.5%
Glidden ⁽⁸⁾	195.8	2.8%	5.6%	7.6	19.2%	50.4%	3.9%	3.4%	2.7%
Hercules Powder	210.3	11.9%	18.5%	17.8 ⁽⁹⁾	29.8%	40.2%	8.5%	7.3%	7.2%
Heyden Newport	42.0	14.0%	18.8%	2.1	4.6% ⁽¹⁾	87.7%	5.0%	5.5% ⁽¹⁾	3.2%
Hooker Chemical ⁽¹⁰⁾	112.0	18.8%	23.1%	10.1	26.8%	31.0%	9.0%	8.4%	8.4%
Industrial Rayon	48.6	12.5%	48.8%	0.9	-2.6%	— ⁽¹¹⁾	1.9%	2.2%	— ⁽¹¹⁾
Intl. Minerals & Chemical ⁽¹²⁾	22.4	9.1%	11.2%	0.5	28.8%	— ⁽¹¹⁾	2.4%	3.7%	— ⁽¹¹⁾
Lilly (Eli)	142.1 ⁽¹³⁾	-6.2%	8.5%	18.6 ⁽¹⁰⁾	-30.5%	9.4%	13.1%	17.7%	13.0%
Minerals & Chemicals	13.0	5.1%	14.1%	1.6	46.2%	114.1%	12.5%	9.0%	6.7%
Monsanto Chemical ⁽¹⁴⁾	465.9	6.7%	15.6%	36.0	16.3%	71.9%	7.7%	7.1%	5.2%
National Distillers & Chemical	416.2	6.0%	11.6%	18.3	3.2%	21.4%	4.4%	4.5%	4.0%
Olin Mathieson Chemical	529.8	17.5%	20.9%	26.8	-7.1%	126.6%	5.0%	6.4%	2.7%
Pan American Sulphur	14.8	24.7%	17.5%	2.9	13.8%	12.2%	19.7%	21.6%	20.7%
Parke, Davis	141.6	20.5%	13.1%	22.2	29.1%	19.6%	15.7%	14.6%	14.8%
Pittsburgh Coke & Chemical	50.6	24.5%	51.8%	2.0	-18.8%	181.4%	4.0%	6.1%	2.1%
Rohm & Haas	163.0	22.7%	27.5%	17.4	49.9%	80.2%	10.7%	8.7%	7.5%
Sherwin-Williams ⁽¹⁴⁾	275.4	6.8%	8.2%	17.5	16.0%	15.2%	6.4%	5.9%	6.0%
Smith-Douglas ⁽¹⁵⁾	45.9	22.2%	15.1%	2.7	81.0%	86.4%	6.0%	4.0%	3.7%
Spencer Chemical ⁽¹⁶⁾	14.3	33.1%	19.3%	1.3	60.2%	85.9%	9.4%	7.8%	6.0%
Stauffer Chemical	131.4	7.8%	7.5%	13.5	28.8%	25.8% ⁽¹⁾	10.3%	8.6%	8.8% ⁽¹⁾
Texas Gulf Sulphur	48.6	-7.2%	20.6%	9.7	-29.7%	-3.5%	19.9%	26.3%	24.8%
Thiokol Chemical	127.9	227.7%	134.2%	4.1	208.3%	133.9%	3.2%	3.4%	3.2%
Union Carbide	1,121.0	7.2%	20.6%	127.0	22.6%	50.3%	11.3%	9.9%	9.1%
Upjohn ⁽¹⁴⁾	117.9	—	7.8%	18.4	—	9.5%	15.6%	—	15.4%
Witco Chemical	38.6	26.1%	32.2%	1.5	36.0%	3.1% ⁽¹⁾	4.0%	3.7%	4.0% ⁽¹⁾
Wyandotte Chemicals	70.3	11.7%	20.3%	3.2	-13.2%	82.0%	4.5%	5.8%	3.0%

(Sales and earnings totals in million dollars.) (1) Excluding non-recurring credits. (2) For 36 weeks ended Sept. 7. (3) For first six months (ended Sept. 30) of company's current fiscal year. (4) Company did not report corresponding data for 1957. (5) For first three months (ended Aug. 31) of company's current fiscal year. (6) Based on preliminary sales total and estimated net operating income for first nine months of '59. (7) For 36 weeks ended Sept. 6. (8) For fiscal year ended Aug. 31. Based on 1957 and '58 data from which are excluded the figures for the company's former Chemurgy Division, which was sold at close of '58 fiscal year. (9) Estimated. (10) For nine months ended Aug. 31. (11) Net loss in '58 period. (12) Parent company plus U.S. and Canadian subsidiaries. (13) Company does not report interim sales totals. (14) For fiscal year ended Aug. 31. (15) For fiscal year ended July 31. (16) For first three months (ended Sept. 30) of company's current fiscal year.

"would accelerate rapidly if the strike is not settled at once."

Industry men are predicting that this quarter will bring a sharp drop in shipments of heavy chemicals unless the strike ends very soon. And producers of chemical metals are being hurt. Union Carbide's third-quarter sales were off \$19.5 million from the second-quarter. Tennessee Products & Chemical says its metallurgical business has suffered a severe setback. Vanadium Corp. of America has shut down two furnaces and laid

off 50 employees at Niagara Falls, N. Y. Pittsburgh Metallurgical has curtailed production in all units.

Makers of plastics and finishes are worried about mounting layoffs in the auto industry. Late last week, word from Detroit was that General Motors' layoffs were up to 120,000, and that Cadillac, Chevrolet, and Oldsmobile plants in Detroit, Flint and Lansing would close this week.

Even after the steel mills reopen, GM tells *CW*, it will probably take three to four weeks for auto pro-

duction to get back to normal. Ford (which has a steel mill of its own) and Chrysler (which is getting steel from a nonstruck mill) stay in production into mid-November.

Optimism for 1960: For the longer haul, optimism is undiminished, despite current setbacks and uncertainties. Note of encouragement: even though third-quarter sales and earnings are down from the second quarter's peaks, the three months just ended were decidedly more prosperous than the same period last year.

Late Tally on Mergers

The new flurry of mergers and acquisitions this week will help cap a year notable for corporate growth by consolidation.

Biggest of the season—the proposed combination of Stauffer Chemical and Victor Chemical—is expected to be approved by stockholders of both companies this week.

And recently finalized was the union of Chemetron Corp.'s Girdler Construction Division (Louisville, Ky.) and the much younger Chemical & Industrial Corp. (Cincinnati). C&I—which has specialized in design, engineering and construction of nitric acid and ammonia plants—will be the parent company; Girdler Construction—strong in construction of industrial-gas plants—will be a subsidiary. Chemetron comes out of the transaction with "a substantial minority interest" in C&I.

In petrochemicals, the big move last week was United Carbon Co.'s sale of its minority holdings in Odessa Butadiene Co. and Odessa Styrene Co. Purchaser: El Paso Natural Gas Products Co., which has been the operator and majority owner of both Odessa concerns. El Paso now holds 100% of the styrene company's stock and 75% of the butadiene company's stock.

United Carbon President R. W. French says both Odessa companies "have shown very good growth," but that United "wishes to concentrate more of its investment capital on increased or improved carbon black and rubber manufacturing facilities and other ventures in the petrochemical and polymer fields."

Five Members: The most diversified creation of the week is Consolidated Electronics Industries Corp. (New York), with pharmaceutical and chemical interests supplementing its activities in the electrical, electronics and utility fields. Formation of the new entity was approved by stockholders of the various predecessor companies, including Anchor Serum Corp. (South St. Joseph, Mo.) and two U.S. offshoots of the Dutch-based Philips electronics and chemicals concern.

Another mass consolidation involved the merger of five Western uranium companies in one corporate

unit, to be known as Hidden Splendor Mining Co. It will be owned by Atlas Corp., a New York investment firm, which already owns one of the constituent companies (also called Hidden Splendor Mining). Other companies in the amalgamation: Lisbon Uranium, De Oro Uranium, Radium King Mines, and Mountain Mesa Uranium.

And Vitro Corp. (New York) has set up a new subsidiary, Vitro Chemical Co., consolidating operations previously carried on by three other Vitro units: Heavy Minerals Co. (Chattanooga, Tenn.), Vitro Uranium Co. (Salt Lake City), and Vitro Rare Metals Co. (Canonsburg, Pa.).

Deeper in Construction: In his quarterly report to stockholders last week, President Henry Hillman of Pittsburgh Coke & Chemical revealed that his company has acquired U.S. Concrete Pipe Co. and Universal Sewer Pipe Corp., major producers of concrete and vitreous clay pipe. These two companies, which have a total of nine plants in the eastern U.S., will operate as wholly owned subsidiaries of Pittsburgh Coke. The acquisitions fulfill a long-standing desire of Pittsburgh Coke to increase its activity in construction products, Hillman said.

Three other new consolidations:

- Leonard Refineries (Alma, Mich.) will be acquired by Standard Oil Co. (Ohio), if a \$17-million purchase offer is approved by stockholders. Leonard's annual sales reportedly total more than \$50 million.

- Brown Co. (Berlin, N.H.)—producer of pulp, paper and other forest products—has boosted its interest in Resi-Chem Corp. (Swanton, O.) from 50% to 80%. Resi-Chem—with annual sales of about \$1.3 million—specializes in wet-strength resins for paper products.

- Union Tank Car Co. (Chicago) will consolidate two of its divisions in the plate-fabricating field: Graver Tank & Mfg. Co. (East Chicago, Ind.) and The Lang Co. (Salt Lake City). The Graver name will be retained for the combined unit.

A recently completed acquisition: Firestone Rubber Co. purchased Celanese Corp.'s Hopewell, Va., dyeing and finishing plant, will produce nylon

tire cord there. And Johnston & Funk Metallurgical Corp. is moving headquarters and plant from Wooster, O., to Huntsville, Ala.

But not all merger talks end in accord. Last week, for example, American-Marietta (Chicago) and Dewey Portland Cement (Kansas City) broke off negotiations. Earlier deals that fell through: the Tidewater-Skelly and Texaco-Superior Oil-Paragon Oil mergers.

Bid for Talent

"**Gentlemen,**" said Silas Pickering, head of Union Carbide Chemicals industrial relations, "we want your product." He was talking to a group of professors who had traveled to West Virginia last week to visit the firm's new Technical Center at South Charleston (*CW Technology Newsletter*, Oct. 24).

Carbide has had its research center at South Charleston for some time. But only recently did it decide to move engineering and development to the same site. The center occupies some 100 acres of a 412-acre wooded site. Now considered complete, it groups five major functions: Research, Development and Engineering Departments for Carbide Chemicals, the Engineering Department of Carbide Olefins and the Design and Construction Department.

Selling the Chiefs: The idea in showing off the new, 2,200-man center to the professors is the ancient gambit of selling the Indians by selling their chiefs.

The firm reasoned that if it could convince the professors of the quality of its research and its facilities, it should be able to attract more of their top students to Carbide.

It brought in 135 professors, showed them the center, wined and dined them, and gave them a choice of 59 seminars with Carbide's technical people. Just how effective is the technique? To a man, professors queried by *CW* said that they were sold on Carbide's research before they made the trip.

Still, they couldn't help but be impressed with the physical setup at South Charleston. Three major buildings house research, engineering and development. In addition, the center has two high-pressure labs, three pilot plants, an application research lab,

a radiation lab and a cafeteria.

And for its part, the firm is convinced that the money spent—probably \$25,000—in bringing the professors to the center was a sound investment. It was highly satisfied with the response. There are even plans afoot to provide similar visits in the future, possibly every year. The firm feels it's one way of making sure that its pipeline of scientific staffers remains full.

Race for Resins

Three more significant steps are taken by chemical intermediate producers to keep ahead of the growing plastics market—in both the U.S. and Canada:

(1) Dow Chemical Co. will expand styrene-butadiene latex capacity of its Texas Division. At the same time, Dow says, it will build a new plant to manufacture styrene-butadiene latexes at Allyn's Point, Conn.

(2) Borden Chemical Co. has scheduled a 2.5-million, 95-million-lbs./year combined resins and formaldehyde plant for the San Francisco area.

(3) B.A.-Shawinigan Ltd. (Montreal) will increase phenol capacity by 20% at its East Montreal plant.

Demand Grows: Dow, which already is engineering for both expansions, says the new facilities reflect growing demand for latexes in paint, paper, textiles and building products. The Connecticut plant will become part of Dow's Allyn's Point Division, which manufactures Styrofoam and Styron.

Borden, which has several plant sites under study, expects the projected resins and formaldehyde plant to begin production by the end of this year.

A tank-car-size reactor has been designed to produce 50 million lbs./year of thermosetting resins and emulsions. The formaldehyde plant will have a capacity of 45 million lbs./year.

Borden's Sixth: This plant—to produce urea and phenolic resins, and also polyvinyl chloride and acrylic emulsions—will be Borden's sixth on the West Coast.

And B.A.-Shawinigan's phenol expansion is expected to provide "sufficient capacity for some years," according to the company. Rated capacity and costs were not given.

Sounding Tocsin on Trade

The call by Merck President John Connor (see p. 10) for U.S.-Canadian industry cooperation reflects mounting uneasiness among government and industry people. Sparking their concern: the deteriorating balance of trade.

Due to foreign aid, overseas military expenditures, and private investment abroad, the U.S. has been running a deficit in the balance of international payments. This situation has prevailed for a number of years, without much concern being shown. Reason: the loss was largely offset by a favorable trade balance. Now, however, that cushion is showing signs of wearing thin.

For the chemical industry, over-all trade figures are still far from bleak. Between 1956 and 58, imports of chemicals and related products rose only 2.1%, to a relatively meager \$279.6 million, while exports increased 9.2%, to \$1.4 billion. But during the first half of this year, exports rose only 5.6%, while imports shot up 22.8%. Part of this shift can be attributed to the lag between the U.S. and European recessions. But more significant for the long run is growing competition by European producers—and this will be magnified by the rising walls of the European "Common Market."

Common Market Speedup? In the past few weeks, something new has been added to U.S. exporters' worry list—the possibility of a speedup in activating the Common Market. The timetable could conceivably be cut to six years, instead of the slated 12-15-year transition. U.S. producers would find themselves frozen out of the European market a lot sooner than they had expected.

If Europe's economic expansion rate is sustained next year, the Common Market speedup will become a very strong possibility.

Meanwhile, formation of the "Outer Seven" Free Trade Area is progressing smoothly, and the agreement is expected to be signed next month. Although some authorities propose the Common Market speedup as a way to bring about some kind of union between nations of the two groups, British observers believe chances for that are slimmer than

ever—at least for the near future.

If the Common Market timetable is accelerated, "the Seven" will probably make their own tariff cuts sooner. To save their European markets U.S. chemical producers will not only have to build plants within both areas—they will have to do so faster than they have been planning to.

Instead of a full-scale accommodation with the Common Market, a pattern of special arrangements seems to be emerging as a means of lessening competitive jolts. These arrangements are along the lines of mutual tariff and quota concessions, and worldwide trade negotiations through the General Agreement on Tariff and Trade.

At GATT: This week, in fact, a three-week GATT ministers' meeting gets under way in Tokyo. The U.S. delegation will drive hard for a lowering of trade barriers against the U.S. Few expect any dramatic developments at the meeting, although Italy and Japan may relax their quotas on imports from the dollar area.

Actually, the U.S.'s European trading partners are already lowering some of their barriers. In Germany, hardly any quota restrictions are left on chemical imports from the dollar area; the last of them will be eliminated by the end of next year.

France recently liberalized the bulk of its dollar imports (including a raft of chemicals) at the beginning of this month. Quantitative restrictions on more chemicals will be lifted Jan. 1.

England, too, removed most of its chemical import restrictions during the past few years, is expected to lift the rest—on compounded dyestuffs, pharmaceuticals, and agricultural chemicals—within the next year.

But none of these moves is expected to have a major effect on U.S. chemical exports.

Many Washington officials, including Assistant Commerce Secretary Henry Kearns, believe the only really effective spur to U.S. exports would be a massive sales effort by U.S. companies. Prices are high, Kearns says, but the real trouble arises from failure to meet the specifications, terms, credit policies, and delivery schedules of our competition.

COMPANIES

Vick Chemical Co. stockholders voted a two-for-one stock split, effective last week. Authorized capital stock shares are changed from 3 million, par value \$2.50 each, to 6 million, par value \$1.25 each. As of Sept. 30, 2,300,999 shares, of the 3 million then authorized, had been issued.

Aluminum Co. of America is resuming limited construction of its \$80-million aluminum smelter at Warick, Ind. Planned smelting capacity: 150,000 tons/year. Construction was halted last year because of the recession.

Hewitt-Robins, Inc. (Darien, Conn.) is shutting down its Foam Products Division in Buffalo, N. Y. Polyurethane foam, made at the firm's Franklin, N. J., plant, is expected to ultimately replace its rubber foam cushioning line, President Austin Goodyear said. He added: "Deteriorated prices have resulted in heavy financial losses in foam rubber production."

Sherwin-Williams Paint Co.'s directors have voted to recommend a two-for-one common stock split to S-W stockholders. Par value would be changed from \$25 to \$12.50/share. The proposal will be voted on at the company's annual meeting, Dec. 8.

EXPANSION

Methylamines: Du Pont is building a new plant to produce methylamines—used in manufacturing agricultural chemicals, rocket propellents, textile fibers and dyes, rubber chemicals and pharmaceuticals—at its Belle, W. Va., site. Construction is to begin early next year, is expected to be completed by first-quarter '61. Du Pont has its own low-cost production process: direct synthesis from methanol and ammonia—raw materials available at Belle. Methylamine derivatives (dimethylformamide and dimethylacetamide) also will be made.

Chlorine, Caustic Soda: Pennsalt Chemicals Corp. (Philadelphia) expects to complete the first phase of a \$6-million modernization program at its chlorine-caustic soda facilities at Wyandotte, Mich., before year's end.

Lime: Dow Chemical is breaking ground at Ludington, Mich., for one of the world's largest capacity lime kilns—one producing 600 tons/day. This will almost double Dow's present capacity. Completion date: Aug. '60.

Paper: St. Joe Paper Co. is planning startup of its eighth box plant at Sharonville, O., by Dec. 1. Container board capacity will be 1 million sq. ft./week.

Enamel: Canadian Industries Ltd. will lease space at Cincinnati, O., from Arnold, Hoffman & Co. (Providence, R. I.), to manufacture CIL's new appliance finish, Dynakote. The newly established subsidiary, called C-I-L Paints, Ltd., says it will build a new plant if sales are up to expectations. Both Hoffman and CIL are subsidiaries of Imperial Chemical Industries, Ltd. (London).

FOREIGN

Plastics/Europe: Union Carbide is setting up a customer service laboratory in Switzerland, to serve its European customers. It will be operated by Carbide's affiliate, Union Carbide Europa (Geneva), will initially serve purchasers of U.S.-made material, eventually customers of Carbide's European affiliates, Celene and Cobenam. The lab will also promote polyethylene processing techniques.

Synthetic Rubber/West Germany: Output of the Bunawerke Huels synthetic rubber plant at Marl has reached full capacity of 45,000 tons/year. The plant is slated for expansion to 70,000 tons/year by next summer.

Plastics Sales/England: British plastics sales have snapped back from last year's doldrums and are hitting record levels. Net sales in the second quarter totaled almost 128,000 tons, compared with 100,000 tons in second-quarter '58. Exports totaled 37,000 tons, accounted for 40% of the total gain registered in the first half. But imports are also up; some 14,000 tons came in during the second quarter, 30% above the '58 quarterly average.

Plastics/West Germany: Badische Anilin- & Soda-Fabrik has upped planned capital expenditures for '60 from \$60 to \$71.5 million. This year's outlays will total about \$60 million, almost half for plastic production facilities.

Research/Japan: Japan is beefing up its industrial research program with the creation of a new agency, the All Japan Science and Technology Foundation. Stressing business research, it will represent financial, academic, and public interest circles in Tokyo, Nagoya and Osaka—principal research centers.

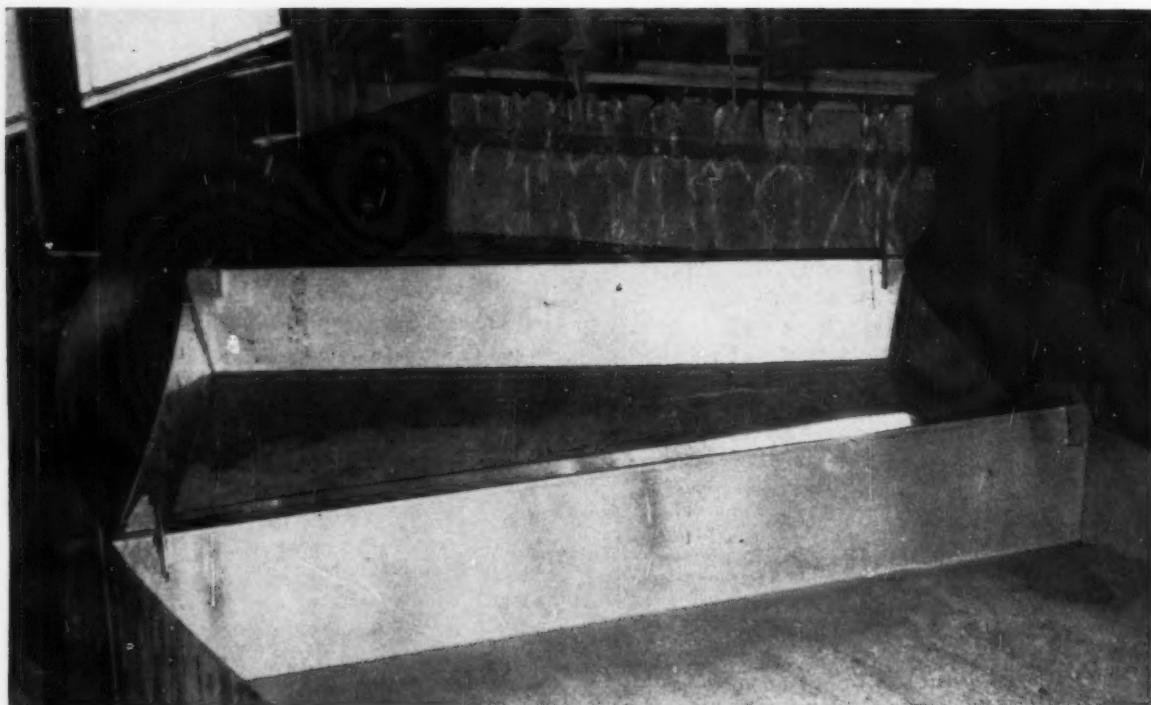
Tires/Greece: Societe Internationale Pirelli S. A. (Basle) will build Greece's first tire plant in association with the Ethel Co. of Athens and private Greek investors. Pirelli is also putting up a tire plant in Turkey.

Antibiotics/Egypt: Pfizer has set up a company in Cairo to produce broad-spectrum antibiotics, will build a \$500,000 packaging plant. Pfizer will put up 60% of the capital, private Egyptian investors the rest.

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Washington Newsletter

CHEMICAL WEEK
October 31, 1959

Use of heptachlor pesticide on edible crops has been banned by an FDA ruling. It was based on tests that allegedly show that heptachlor deteriorates when exposed to weather, forming toxic epoxide residues on fruits, vegetables, grain and forage crops. These show up in meat and milk from animals fed with heptachlor-treated forage.

Use of heptachlor, a major pesticide, had previously been permitted if residues did not exceed one-tenth part per million. This tolerance is now zero. The producer of the chemical is Velsicol Chemical Corp. of Chicago. Velsicol will have 30 days to appeal the ruling.

Two more orange colors have been delisted by FDA. They are FD&C Orange 3, widely used in drugs, and FD&C Orange 4, used largely in lipstick. The delisting further reduces the range of colors available to drug and cosmetic manufacturers. The coal-tar colors are banned under a Supreme Court interpretation that present laws forbid use of color products which could be toxic, even though they are not harmful in small amounts. The new delisting will add impetus to the push for House passage of a Senate-approved bill permitting tolerances for synthetic colors.

The Army is scrapping its full-scale food irradiation program until further research yields more promising prospects.

The Army had already spent \$1.3 million toward construction of a \$7.5-million irradiation center at Lathrop, Calif. But lab tests showed that irradiation was destroying vitamins as well as killing bacteria. The results of feed tests on animals included decreased fertility, visual defects, enlarged auricle of the heart, hemorrhaging, and shortened life span of offspring. But there was no evidence that food became radioactive or induced cancer.

The high levels of radiation used were more than food producers would need simply to increase shelf life of groceries. But the food industry is not sufficiently interested to spend its own money for fundamental research. Cost of irradiating, then replacing vitamin content, appears uneconomical. Suspension of the program will spur industry efforts toward improving present methods of food preservation.

Choice of a site for the first plant to desalt brackish water has been narrowed to 10 cities in the Southwest and six in the northern Great Plains. (Two plants are to be built.)

The Southwest cities are Wichita Falls, Stamford, Ballinger, Monahans and Pecos, Tex.; Carlsbad, Roswell, Alamogordo and Santa

Washington Newsletter

(Continued)

Rosa, N.M.; and Safford, Ariz. The Plains cities are Lincoln, Eureka, Miller and Webster, S.D., and Ellendale and Devil's Lake, N.D.

The first plant will convert 250,000 gal./day, through an electrodialysis process. It will be simple to construct and may be in operation by early '61. Other plants, for converting sea water, to be located at Freeport, Tex., and San Diego, Calif., will not be finished until later. They will use distillation processes.

Defense funds for basic research are expected to increase, despite hold-the-line budget efforts now going on in the Pentagon. Defense spending is tighter than ever this year in an effort to hold it to \$41 billion in the face of more costly programs.

The basic research boost is expected to go into such fields as hypersonics (study of gases at high speeds), superaerodynamics (gases at high altitudes), high-temperature material studies, and research on cosmic and electromagnetic radiation above the earth's atmosphere. The Pentagon's "general science" budget now runs to \$372 million, about one-third of it being for basic research.

Actually, the R&D increase will be made to look bigger than it really is. Some of the projects now listed under "procurement" still show up in the books under "R&D." Still, the real increase will be noteworthy.

A move to tap Canadian gas for the gas-hungry Midwest came a step closer last week. The Federal Power Commission was asked by Midwestern Gas Transmission Co. and Michigan Wisconsin Pipe Line to approve import of 204 million cu.ft./day. FPC has already cut red tape by omitting the intermediate hearing examiner's decision.

Competitive thermoelectric heating and cooling devices should be available by '65, according to industry spokesmen. They exhibited their wares at a seminar in Washington sponsored by Whirlpool Corp.

These systems use electricity directly for heating or cooling, thus eliminating all movable parts in refrigerators. A food compartment for aircraft, for example, would hold frozen food at proper temperatures until a switch was thrown, converting the refrigerator into an oven, which would cook the food. Radiant heat panels that could either heat or cool a room were displayed.

High materials cost and the need for direct current are holding up marketing of thermoelectric appliances. But industry technicians feel certain they can lick the cost problem within a few years. The Soviets are reported to be at about the same stage of development as is the U.S.





How do you glue a broken bone?

Today in the operating room, a surgeon may ask for, "scalpel clamp...glue." A new development in the field of orthopaedic surgery has made it possible and practical to glue a broken bone. A new plastic "glue" called Ostamer promises to speed re-use of a fractured arm or leg and shorten the patient's hospital stay. The glue is a strong polyurethane foam that has been used to mend over 350 serious fractures which needed reduction by surgery.

The ingredients which form the "glue" can be sterilized and then mixed at the operating table. An activator containing aliphatic tertiary amines is added in a predetermined amount to the polyisocyanate prepolymer and well mixed. The surgeon then has a "glue" ready to pour into the space between the fractured bone.

The glue hardens quickly and in a few hours the patient may move the repaired limb. Patients have been up and walking in two to seven days after having a broken leg bone glued by a surgeon.

There is no toxic reaction to the plastic which is soon replaced by new bone which grows around and through it. Polyurethane foam is made from tolylene diisocyanate, a derivative of toluene, one of the USS Chemicals.

USS is a registered trademark
'Ostamer' is a registered trademark of the Wm. S. Merrell Co. Division of Vick Chemical

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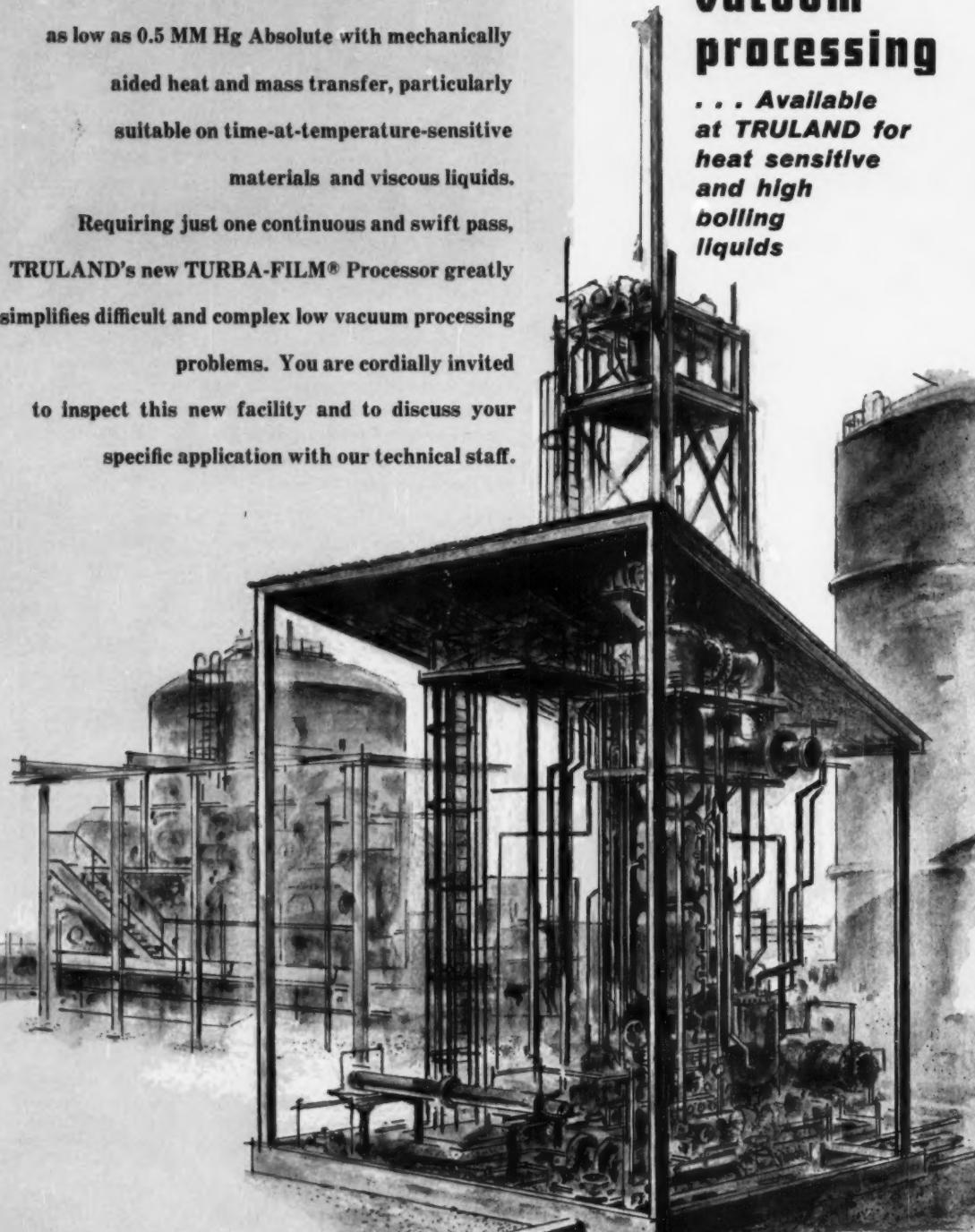
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RESEARCH



Mouse is critically examined for response to suspected carcinogenic agents at Mellon Institute.

Rush Season for Toxicology Researchers

Spurred by Public Law 85-929, companies this week are hurrying to get Food & Drug Administration approval of the array of chemicals connected in one way or another with food packaging. Their goal: to meet FDA's March 5, '60, deadline. The rush has forced toxicological research spending up nearly 100% over '58 levels.

The sudden importance of toxicological work is reflected in recent lab expansions—e.g., Mellon Institute's new, recently opened toxicology research laboratory, which represents a "sizable portion" of the cost of its new, \$3-million research center near Pittsburgh, may have to be expanded far sooner than planned, according to Henry Smyth, Jr., Mellon administrative fellow.

Mellon, under a fellowship, has been doing work on safe chemical production, handling and use for Union Carbide for 22 years—at a \$4-million total cost. Now, costs of this research are reported to be rising at a 6%/year rate.

Farm System: Few "captive" toxicology labs are as big as Mellon's. So most companies are relying on out-

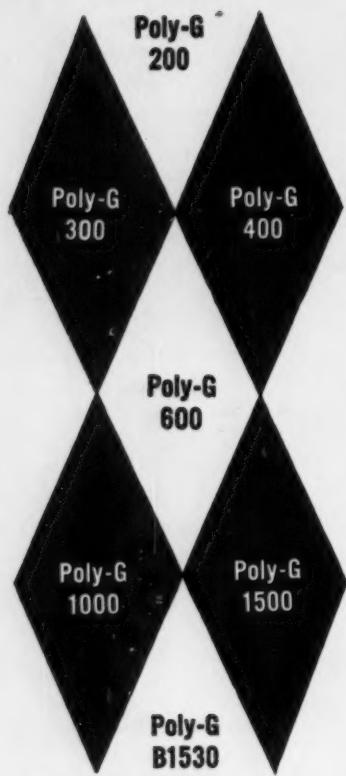
side help, mostly from independent laboratories like Food and Drug Research Laboratories (Maspeth, New York City) and Hazleton Laboratories (Falls Church, Va.). Recently, Hercules Powder farmed out a \$500,000 contract to Industrial Bio-Test Laboratories (Northbrook, Ill.) to screen its rosin materials used in paper food packaging. Allied Chemical also farms out its toxicity testing, works with several private labs.

Some firms, of course, do their own toxicology research, supplementing it with some outside work. Monsanto (whose Santoquin antioxidant is one of the five chemicals approved by FDA for use so far under the new law) is in this group, is spending 25% more on toxicology research this year than last. A special case is Dow Corning, which pays parent Dow to handle this work in the latter's well-staffed, 25-year-old biochemical laboratory. Eastman Kodak also does some of its own work, farms out some—reports its testing costs are a "cause for concern."

Bugged Bonanza: Under the new ruling, independent laboratories specializing in toxicology studies are, of



Mellon Institute's Smyth anticipates 50% lab expansion in 10 years.



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With seven different Mathieson polyethylene glycols, you get the versatility you need to take care of a wide variety of requirements.

Polyglycols have numerous applications as chemical intermediates, solvents and humectants. They are used in the manufacture or processing of surface active agents, resins, rubber, pharmaceuticals, cellulosic materials, printing inks, textiles, leather, etc.

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RESEARCH

course, doing a landslide business. But it's a business fraught with more than chemical hazards. More extensive testing requires a larger inventory of rabbits, rats, guinea pigs, dogs, and other animals. They're expensive to keep, particularly if business should dip.

Animals are used for both feeding tests and external tests. In one of the determinations, a dog is fed a ration of test chemical along with its food for two years, and closely observed during that time. Pinpointing a chemical's toxicity via such animal tests can cost as much as \$130,000.

So both test labs and chemical makers are hoping that chemical tests—analytical determination of extractables in a given food packaging material, for example—may supplant animal testing in many cases. (Theory: if little chemical can be extracted under standard conditions, there's little hazard.)

But even these types of tests are expensive. Determining extractables in food-type solvents can cost \$1,000 to \$10,000. Another complication is the so-called Delaney clause of the new amendment, which bars carcinogens from food. Lacking specific knowledge of what causes human cancer, labs are hard put to come up with suitable tests to determine carcinogens. Generally, however, mice are used to screen industrial chemicals as cancer-causers.

Then there's the problem of scheduling tests. Companies approaching independent labs frequently find there's no way to work in a new feeding test among the others that may be in progress.

That such delays might arise was allowed for by FDA, of course. John Kuniholm, of Hercules Powder's legal department, points out that while FDA has made provisions for extensions beyond its March deadline, this applies only to specific chemicals where the extension can be shown necessary and where use of the chemical won't jeopardize public health. He anticipates that packaging FDA has already approved for use will enjoy "a big sales advantage" after March.

Small Firms Hit: Cost and confusion surrounding the new law are hitting the smaller concerns particularly hard. One New York pigment maker says the sales volume of each

of its range of pigments won't justify even a rudimentary toxicity test.

And it is the small-volume chemical, too, that's drawn comment from Bernard Oser, head of Food and Drug Research Laboratories. He argues against testing flavor chemicals (e.g., methyl heptine carbonate, furfuryl mercaptan, alpha-ionine, and ethyl cinnamate) that are consumed at the rate of only a few hundred pounds each year (total chemicals) in the U. S.

Since the estimated national food consumption is 262 billion lbs., Oser feels their concentration isn't toxicologically significant. Less than a part-per-million is used in any particular food or beverage, only fractional parts per billion in the average diet. Says Oser, "It is economically impossible to justify the cost of obtaining petition data for most flavor chemicals."

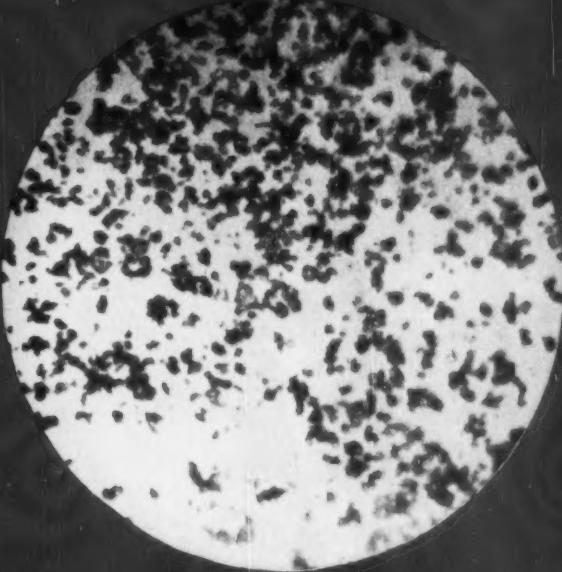
He tells *CW* the national toxicology research bill may multiply several-fold when the new amendment is in full operation. And *CW* has learned there's a chance that even this guess could be conservative. Arnold Lehman, director of FDA's pharmacology division, says some testing periods might even be extended—"maybe seven years on dog tests instead of two." If that happens, the traffic in toxicology labs may slow to a near halt.

Boon for Beets

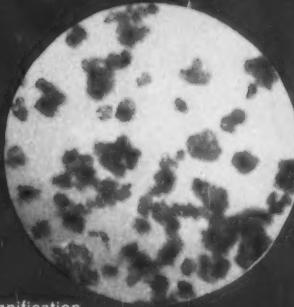
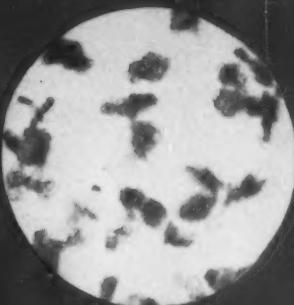
A new pest-control method is helping California sugar beet growers reduce losses caused by disease and insects. Granulated systemic pesticides applied to the top of sugar beets give "practical and lasting control" of insects that carry a virus disease (called beet yellows) that damages plants.

Entomologists H. T. Reynolds and R. C. Dickson, University of California (Riverside), devised the successful treatment after several years of tests in the Imperial Valley. By applying *o*, *p*-diethyl *s*-(ethyl thio methyl) phosphoro dithioate (American Cyanamid's Thimet) or *o*, *p*-diethyl *s*-2 (ethyl thio)ethyl phosphoro dithioate (Nemagro's Dy-Syston) granules to the beets, sugar yields were upped 1,500 lbs./acre, mostly due to control of the Green Peach aphid, carrier of the yellows virus.

INTRODUCING
FLEXICHEM CS
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A
B
C



225 x magnification
 Scale 1 mm = 4.4 microns

The photo micrographs indicate how FLEXICHEM CS (A) compares in size and uniformity to typical samples of commercially available 325-mesh calcium stearates (B and C).

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To calcium stearate users, this unique property can spell greater surface coverage and improved mileage for every pound of FLEXICHEM CS used . . . whether it's used as a mold release agent, anti-caking or waterproofing agent, or as a lubricant in the plastics or rubber field.

In addition, FLEXICHEM CS contains less than 0.6% moisture, is extremely low in water soluble salts, and has less than 0.2 PPM of combined arsenic and lead. Look over its other properties on the chart—then write for details on a trial or sample quantity of Swift's new FLEXICHEM CS.

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Particle size:	20 microns maximum
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Odor:	Bland
Bulk density:	20 lbs. per cu. ft.
Melting point:	147°-149° C.
Moisture:	0.6%
Iodine number:	2 maximum
Solubility:	Insoluble in water, alcohols, esters and ketones. Slightly soluble in hot benzene, toluene, xylene, carbon tetrachloride, vegetable and mineral oils. Soluble in hot pyridine.

For further details, write for Bulletin 42.

Swift
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How and why..



WONDERWALL, West Virginia's new multiwall bag made with Kraftsman Clupak paper, is inspected by industry leader Robert S. Gerstell, President, Alpha Portland Cement Company, Easton, Pa. "This isn't the first time we've introduced revolutionary advances for the sake of better operations in our plants . . . and for our ultimate customers," Mr. Gerstell states.

...ALPHA CEMENT changed to multiwalls of West Virginia's Clupak* Paper

When the new tougher Kraftsman Clupak paper was being introduced by West Virginia Pulp and Paper Co., the Alpha Portland Cement Co., Easton, Pa., major producer of Portland and mortar cements, did its own testing.

This was only natural for a leading company in the industry—with eight plants in the East, Midwest and South. Alpha's president, Robert S. Gerstell, foresaw the tremendous possibilities of Kraftsman Clupak paper, especially in terms of customer satisfaction and operating economy. With his guidance, Alpha was the first major cement company fully to realize the potentials of this new West Virginia paper!

Alpha's purchasing agent, James I. Maguire, directed the test program which compared Alpha's then current, natural kraft multiwalls with bags made of the new Kraftsman Clupak, the paper with built-in stretch.

Filling, handling and shipping were all examined. On every count, the new Kraftsman Clupak paper bag proved its superior toughness!

Construction of the natural kraft bags, to carry 94# of Portland cement, was 2/40, 2/50 totalling 180# paper basis weight. The new Kraftsman Clupak bags

were 1/50, 1/50, 1/50 totalling 150# paper basis weight. Savings on the paper basis weight reduction of 30# amounted to \$2.75 per M bags.

But more important—bag breakage in shipments of both Portland and mortar cement has become negligible! And complaints from supply dealers have been reduced to a minimum.

Today, virtually all multiwalls used by Alpha, from whatever supplier, are made of Kraftsman Clupak paper. And naturally, Alpha is using West Virginia's own bag, called WONDERWALL.

If you pack fertilizer, feed, cement, flour, chemicals or like products, see how you can *cut costs* and satisfy customers *better* with WONDERWALL. Write Multiwall Bag Division, West Virginia Pulp and Paper Company, 230 Park Avenue, New York 17, N. Y.



*Clupak, Inc.'s trademark for extensible paper manufactured under its authority.



TEST MASTER. James I. Maguire, purchasing agent of Alpha Portland Cement Company, says: "The success of bags made from Kraftsman Clupak paper, due to sheer toughness, was extraordinary from the start. They are not only tougher . . . they make possible realistic savings in bag costs."



WONDERWALL PROVING GROUND #1. Actual handling of WONDERWALLS and other bags made with Kraftsman Clupak paper—in comparison with the old, natural kraft multiwalls—proves the superiority of Kraftsman Clupak paper. No problems with filling, opening, stacking or shipping.



TIME TO SHAVE

your soda ash costs

EVERY \$6,400 YOU SAVE IN PROCESSING OR MANUFACTURING IS WORTH A \$100,000 ORDER

This is a startling fact that calls for careful heeding by every businessman.

Pretax earnings average 6.4% or \$6,400 on each \$100,000 of product you sell, after raw materials, sales expenses, overhead and miscellaneous are deducted.*

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A re-evaluation of your soda ash purchases may reveal appreciable savings.

Here are a few factors to consider:

(1) Columbia-Southern may develop, through a study

of your operations, potential savings in your converting from bag to bulk purchases.

- (2) Savings also may become apparent in a study of Columbia-Southern's three Soda Ash plant locations, selected for maximum delivery efforts.
- (3) Further possibilities may exist through the kind of help Columbia-Southern can give you in specialized technical assistance and in recommendations for profitable handling and storage procedures.

If you haven't carefully appraised your soda ash purchases within the past few years, we suggest that you call today at any of the fourteen Columbia-Southern District Sales Offices for prompt and helpful information.

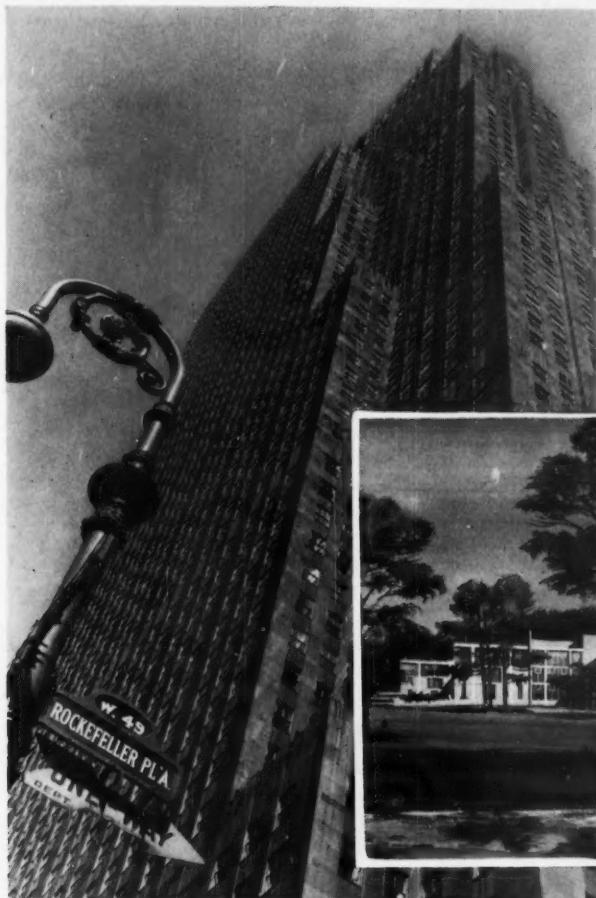
*Based on Manufacturing Corporation Statistics for first half of 1958.

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ADMINISTRATION



◀ **Out of a New York skyscraper**

... into a New Jersey meadow ▶

City Dweller Heads for the Country Life

Latest to plan an executive exodus from New York City's frenzy is American Cyanamid Co., which this week detailed for CW the pros and cons of its move to a quiet New Jersey countryside. Cyanamid is not alone in deciding to leave, and its reasons are direct clues to the thinking of others taking the same course.

Several years of planning resulted in Cyanamid's strategy: to set up a central, permanent command across the Hudson, in Wayne, N.J., near its three plants closest to New York.

Centralization is one of Cyanamid's biggest pros. Right now, the company's headquarters is spread thinly among eight locations in midtown Manhattan. The various offices command some of the city's finest views—and highest rents.

Rent advantages alone will pay for the move, Cyanamid expects, but the financial pros and cons are only a small part of the reasoning. A main consideration is the personnel involved.

About the People: Cyanamid's Dick Bechtel, assistant to the vice-president for services, has been put in charge of the move. He finds that half the company's New York personnel already live "in the country," fringing the city; half of them live in New Jersey within easy commuting distance of Wayne. Just the time and expense figured in commuting through snarled city traffic vs. the advantages of suburban living can justify the change of location he believes.

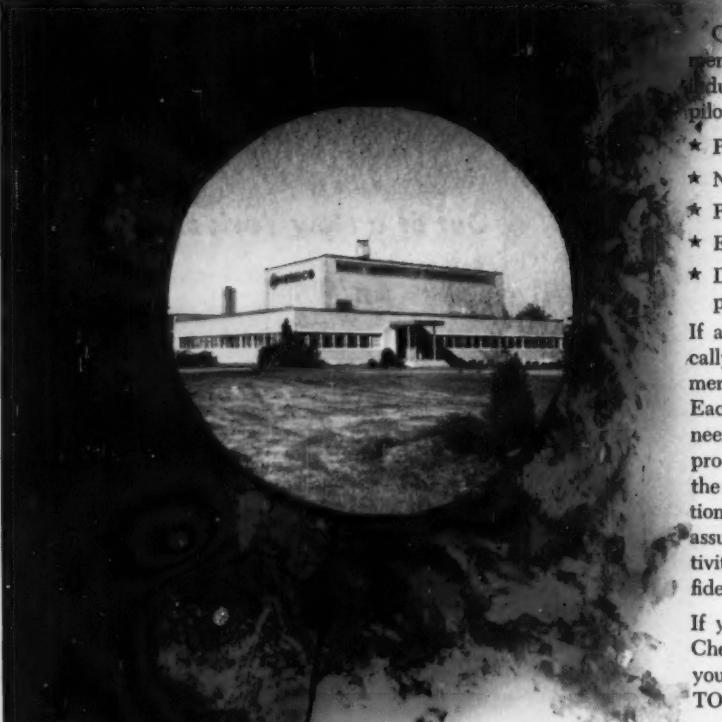
A loss of some personnel, particu-

larly from the clerical staff, is expected, although the new site is only 24 miles from New York—easy commuting for confirmed Manhattan "cliff-dwellers."

Labor Market: Cyanamid counts the sociology of its move as a big plus. More than a million people live near Wayne, and the company expects a good market of stable, high-caliber workers, with lower rate of turnover than at present.

The town, which invited Cyanamid to move there, is welcoming the 2,000 employees. The proposed buildings are designed to add beauty to the area; taxes and increased spending will swell local coffers.

Administrative Problems: Care of buildings and grounds—now handled by hired service groups—will be done



Chemico's modern research and development center is staffed and equipped to provide industry with a full range of bench scale and pilot scale development services, including:

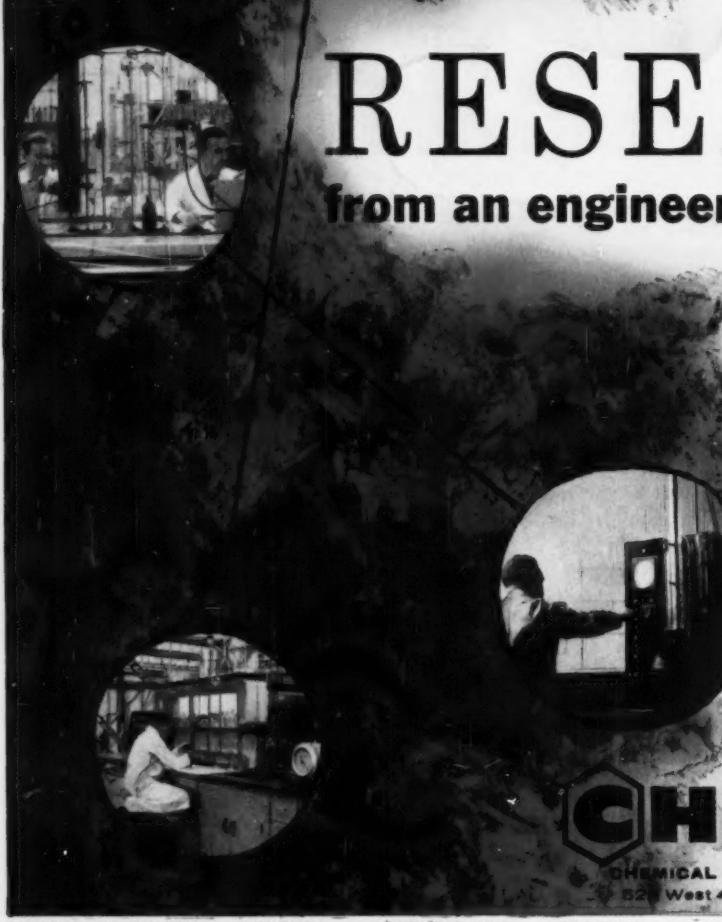
- ★ Process development and evaluation
- ★ New process research
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- ★ Efficiency improvement of unit operations
- ★ Development of new equipment and products

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RESEARCH

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ADMINISTRATION



CW PHOTO—J. BYDLOW

Cyanamid's Bechtel: Leaving the city means no great loss to his firm.

by Cyanamid, but the added control over these services and the extra employment for local workers offset administrative problems.

Moreover, since Cyanamid has been talking about a move for several years, plans have taken a clear outline far ahead of moving day: most of the reasons against moving have been rationalized or accommodated. For instance, the company knows that foremost among the disadvantages will be a lessening of contacts in New York. Executive lunches and informal meetings—so much a part of the New York business milieu—will have to become planned conferences.

Transportation must be arranged to and from the city. The company already owns a number of vehicles and will add several station wagons to its pool.

Modern communications, Bechtel thinks, have reached a point where dealings with city contacts won't be hurt substantially and that nothing will change in operating the company's plants by telephone, TWX, and the like.

No Change in Operations: The change of address is not expected to cause appreciable changes in managerial operations. Cyanamid will phase its moves over a long period to keep continuity. Many executives

are already looking for homes in the area: They may not move for several years, and details have not been set on what assistance will be given to those who move. Over-all, Cyanamid figures an \$8-10-million spread for the cost of the change, including the building.

Other Companies Moving: Cyanamid has distinguished company in leaving New York. Allied Chemical's General Chemical Division has already partly moved into new quarters in Morristown, N.J. Although it was uncertain what talents the local labor market could provide, the division was swamped with applications from 500 high-caliber personnel to fill the 42 vacancies the move had created. To solve the communications problem, the division is considering the installation of closed-circuit television between Morristown and New York offices.

Expensive Problem: When Combustion Engineering, Inc., recently decided to move to Windsor, Conn.—about three hours' drive from New York City—it was faced with selecting employees to make the move. About half of its 1,200 executives and other personnel were asked to remain with the company, which is paying all costs of moving and is helping with the arrangements. The company estimates that the move will cost more than \$1 million, including severance pay and allowances for those who will be out of a job. Reason for the transfer: space requirements have grown prohibitively large. CE selected the Connecticut location because buildings and property were already there.

Opposite View: But many CPI companies won't flee New York. Union Carbide, for instance, debated moving its offices to White Plains, N.Y.—30 miles from the city. Carbide had originally bought the land, where its Research Institute is now located, with the idea of moving executive offices there. But, the company says, "our employees were our main consideration, and we discovered that other companies had found housing difficult and the labor supply inadequate."

This, and because White Plains would be difficult for visitors to reach, helped convince Carbide to build a multimillion-dollar building in the heart of New York City.

LABOR

Atom Raise: Atomic energy plant workers at Paducah, Ky., and Oak Ridge, Tenn., have accepted a 9¢/hour wage increase offered by the Union Carbide Nuclear Co., which coordinates operations of the four plants. The increase brings hourly wages to \$2 for laborers, to \$3.15 for skilled technicians. Oil, Chemical & Atomic Workers Union represents employees at two of the plants, while AFL-CIO's Metal Trades Council represents those at the other two plants.

Olin Agreement: Olin Mathieson Corp. and District 50, United Mine Workers, have agreed to a 10¢/hour general wage increase, with an additional 2¢/hour premium for shift workers at OM's Niagara Falls, N.Y., plant. The increases are retroactive to June 28. Also in the agreement: improved vacation program, and changes in job classifications and working conditions. The contract calls for a wage opener on June 28, '60.

KEY CHANGES

Philip R. Scarito to vice-president, compounding and calendering, **James C. Hahn** to vice-president, Polymer Division, **John C. Kancylarz** to vice-president, public relations and personnel, all of Cary Chemicals, Inc. (New Brunswick, N.J.).

Gaylord Davis and **Frits Prakke** to directors, American Enka Corp. (Enka, N.C.).

E. A. Snow to vice-president, advertising, Procter & Gamble (Cincinnati).

Joseph C. Duke to executive vice-president, sales administration and public relations, Minnesota Mining and Manufacturing Co. (St. Paul).

F. L. Litty to president, **Ralph E. Fraser** to vice-president and assistant treasurer, **Donald Fangmeyer** to vice-president, sales, all of Northern Chemical Industries, Inc. (Searsport, Me.).

Roger B. Sammon to president, Stein Hall Ltd. (Toronto), Canadian subsidiary of Stein Hall & Co. (New York).

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HYDROGENATION

G-49, a new reduced, stabilized nickel catalyst in finely divided form, has been developed by Girdler Research and is now available in commercial quantities. Tests show it will provide better performance in certain applications than previously available types. There are no organic components and, being non-pyrophoric, it is safer to handle. Write for full details and sample of new G-49.

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ADMINISTRATION



CW PHOTO—W. GOBER

Pinelands parade celebrates resurgence from economic decline.

Plant Sparks Town Party

While citizens of Foley, Fla., in Taylor County, last week were enjoying their annual Pine Tree Festival celebrating the bounty of their forests, local businessmen were totting up the benefits brought by the one large industry in their midst—Buckeye Cellulose Corp., subsidiary of Procter & Gamble.

The summing up is important, Buckeye management believes, because it is a rare and clear-cut example of an industry's influence on a town unaffected by other economic forces. It also shows the effects produced by a mutually sympathetic and patient attitude on the part of both town and industry.

Doldrums to Dollars: Prior to Buckeye's arrival, in '51, Foley's economy had declined sadly. Lack of conservation measures had brought about the death of the sawmill and lumber industry, and both dollars and people were leaving the area in quantity. Now, however, businessmen are reviewing gains, made since 1951, that are almost entirely attributable to Buckeye:

- A second bank is operating and total bank deposits in the county are up to \$6.6 million, from \$2.2 million.
- There are 328 businesses, 136

more than in '51, in the county seat of Perry, located five miles from Foley, and the largest nearby town.

• Population of Taylor County has risen from 10,400 to 14,000. Perry's population has tripled.

• County retail sales have nearly doubled, to \$18.3 million.

• County vehicle registrations have risen from 3,001 to 5,120.

In the Beginning: Buckeye decided to put up a pulpwood mill at Foley because of the potential wood supply there. At first, it worried about the reception a large installation might get, moving suddenly into a small, declining community. But local leaders and the company agreed to be patient with one another, work to iron out problems that might arise. Buckeye has been so pleased by its reception that when it doubled plant capacity, it chose Foley as the best place to make the addition.

Buckeye's impact on the community as its lone major employer has also been noted in other ways. Citizens report that prior to the plant's construction, civic planning was done in a piecemeal, day-to-day manner. Now, they say, activity has been accelerated—a development council has been established to entice industry.

ENTER THE NEW

It Pays to See Victor CONTEST

Win a glorious, glamorous all-expense trip for two
to London, Paris and Rome for the 1960 Olympics

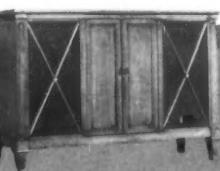
50 Prizes 50

First Prize: You board a Pan American Jet Clipper in New York... streak across the Atlantic to London... spend a few carefree days there and in Paris, the queen city of the continent. Then on to Rome and the Olympics.

Win first prize in the new "It pays to see Victor" contest and this fabulous, unforgettable European *holiday for two* is yours! You'll never forget seeing the thrilling ceremonial open-

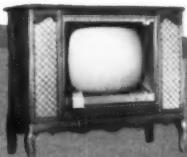
ing of the Olympics on August 25—or the grandeur and the glory that is Rome, the Eternal City.

Here's all you do to win. Complete the puzzle inside and mail your solution. Clues are plentiful (don't overlook the help on the back page). You'll have a chance to pick up extra clues if you stop at the Victor Booth at the 27th Exposition of Chemical Industries show in New York November 30—December 4.



SECOND PRIZE:

Zenith Stereo Hi-Fi Console.
This exquisite mahogany model will bring the finest recorded music to life. A breathtakingly beautiful addition to your home.



THIRD PRIZE:

Zenith Space Command
Console 21" TV



10 FOURTH PRIZES:

Zenith Portable
TV sets
with 17" screens



15 FIFTH PRIZES:

Zenith AM-FM
table radios



22 SIXTH PRIZES:

Zenith
Transistor Radios

"IT PAYS TO
SEE VICTOR"

Contest

it's Easy
it's Fun!



OFFICIAL ENTRY BLANK
"IT PAYS TO SEE VICTOR" CONTEST,
Box 5907, Chicago 77.

Name.....

Title.....

Company.....

Address.....

City..... Zone..... State.....

HERE'S ALL YOU DO...

Study the clues carefully, then fill in the missing letters in the puzzle. Clues to some of the names or abbreviations of Victor chemicals in the puzzle are given in the story on the back page. Extra clues will be available in Victor's Booth at the New York Chemical Exposition at the coliseum. One word of caution: a few of the *regular* word choices are tricky. So, be careful. Winning entries will be selected on the basis of the rules given on the opposite page. The correct solution to the puzzle is locked in the vaults of The First National Bank, Lake Forest, Illinois.

IT'S A JET CLIPPER TOUR FOR
2 TO Europe
 AND THE 1960 OLYMPIC GAMES

49 MORE
 WONDERFUL PRIZES!

CLUES ACROSS

3. Product of combustion.
6. Hospital patient should be glad to get this.
8. First two words of a truism known to buyers of chemicals (See 9 Down).
11. Very small round mark.
12. Greek letter associated with 3.14159.
13. One is enabled to get up and down with the help of the steps on these.
16. You play billiards with them.
17. Acid used in leather tanning and in dyeing textiles.
19. Percolates.
20. Is that —?
21. One kind of thoroughfare (abbr.).
23. Abbreviation of a chelating agent used to control metallic ions in water.
26. Rocky pinnacle or peak.
27. Meat of calves.
28. There are certain conditions in which a hard blow may cause one to be broken off.
29. Not every —ERIAL is suitable for TV.
30. Bloody this may well be helpful in solving zoo keeper's mysterious death.
31. Letters of the chemical symbol of element combined in a sodium phosphate used in household cleansers.
32. Abbreviation of chemical intermediate used in organic synthesis.
33. Encouragement should be freely given to person who may I—CH to reach a worthy goal.
35. Victor has a — of satisfied customers.
37. Tree of the genus Ulmus.
38. You'd expect to see one on a farm.

39. Prefix of phosphate used in liquid detergents.
40. Seeing these ahead, steersman is likely to avoid that stretch of water.
43. "A Streetc — Named Desire".
44. European city which winner of "It pays to see Victor" contest will visit and attend 1960 Olympic games (European sp.).
45. Hazard.
46. Tear with violence.
48. Sharpshooter may blame this for his low score.
49. River in Germany noted for castles.
51. Phosphoric solution widely used for metal finishing and rust prevention.
53. Weaving frame.
54. It's likely that amount of insurance owner carries on this will vary with its size.
55. Young hoodlums cutting up on New Year's Eve may well regret letting fly with snowballs at passing —OPPER.

CLUES DOWN

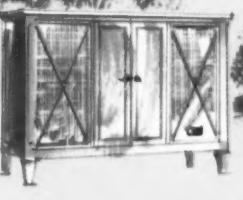
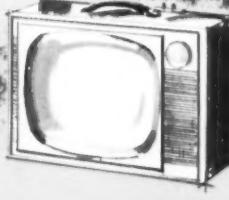
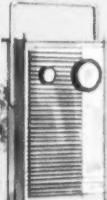
1. Instructor's college diploma will hardly be useful if she only has to teach D—NCES.
2. From those who tip him, cab driver makes quite a little on the —IDE.
3. Suitable.
4. South America (abbr.).
5. Prefix of a Victor chemical used in electroless nickel plating.
7. Girl's name.
9. Last three words of a truism known to buyers of chemicals (See 8 Across).

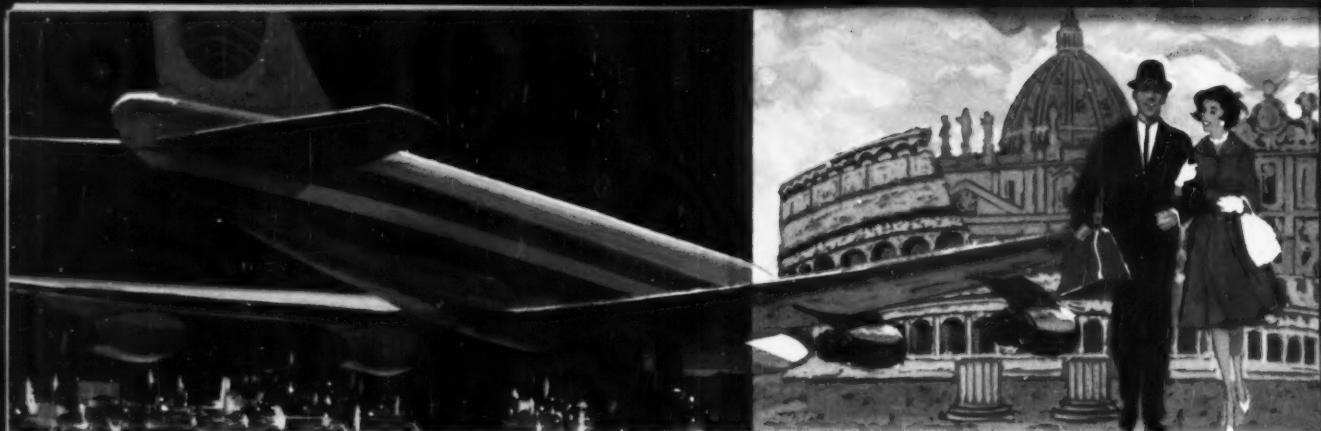
5. The judges will select as prize winners those persons whose entries rank highest. They will select as the first prize winner, the entrant who submits the correct or most nearly correct solution. The clues Down numbered 26, 28, 34 and 42 must be answered correctly or the rest of the puzzle will not be judged. In case of ties, the ties will be resolved in favor of the entrant who submits the correct answer to Clue 6 Across, then Clue 13 Across, then Clue 28 Across, and so on until no ties remain. Should ties still exist, tied entrants will be required to complete in not more than 25 additional words the statement, "In the . . . industry, it pays to see Victor because . . ." Such statements will be judged on the basis of originality and aptness and duplicate prizes will be awarded in case of ties.

6. There are 50 prizes, as shown elsewhere in this announcement.
7. Contest is subject to all Federal, state and local regulations.
8. Winners will be notified by mail about March 1, 1960.

Rules

1. This is a contest of skill. Study the clue definitions carefully before writing in your answers. There is only one correct solution. If no correct solution is received, those most nearly correct, based on the clue sequence described below, will be selected as winners. Judges have been appointed by Victor Chemical Works, and they will consider all entries and determine the prize winners. By entering, entrants agree that the decision of the judges shall be final and binding. No entries will be returned. All entries become the property of Victor Chemical Works.
2. After you have filled in your answers neatly and clearly, fill out the official entry blank and mail the puzzle and entry blank to: "It Pays to See Victor" Contest, Post Office Box 5907, Chicago 77, Illinois.
3. All entries of solutions to the puzzle must be postmarked before midnight, December 15, 1959, and received before December 31, 1959.
4. Entries shall be limited to persons over 21 years of age, and who are residents of the United States, except employees of Victor Chemical Works, its advertising agency, and members of their families. Only one entry per person will be accepted.





from New York to Europe

"IT PAYS TO SEE VICTOR"

- Let your imagination take wings. Imagine, for a moment, you're the winner of first prize in the new and exciting "It pays to see Victor" contest. Last call for London, Paris, Rome . . . and the 1960 Olympic games. So, climb aboard this gleaming Pan-American Jet Clipper (along with your partner), and zoom off into the wild blue.

- Though you leave your cares behind as you sweep silently over to Europe . . . the part Victor chemicals play in your life will be much in evidence, even "over there." Look around the cabin as you glide over the Atlantic. The aluminum you see is all bright dipped in a solution containing phosphoric acid. And aren't your stewardesses pleasant . . . personable . . . and lovely to look at! Part of the pleasure of their appearance lies in their uniforms—dyed to a beautiful shade in a bath using formic acid as an acidulant.

- After a few delightful days seeing the sights in London town, you hop over to Paris. Gay Paree—where cuisine is king! Even here, though, dishes have to be washed. And to help assure clean, sparkling results, chlorinated trisodium phosphate is in the dishwashing compound—just like "back home."

- Now, on to Rome and all the excitement and pageantry of the Olympics. Our athletes, with you cheering them on, are sure to pull down a record number of gold medals. One reason for their superiority is that their diet is rigidly watched . . . and well balanced. Tricalcium phosphate added to foods for mineral enrichment helps keep our men in the pink. Minor aches and pains are inevitable, of course. But they're quickly bandaged. Fortunately there's never a shortage of cotton when methyl parathion is the pesticide. PARA is sure death to boll weevils.

- We hope, when you get to Rome, you'll do as our "Romans" do—enjoy yourself and see in examples all around you that "It pays to see Victor."



V **VICTOR**
Dependable Name in
Chemicals
for 61 Years.

SALES



CW PHOTOS—ED WALLOWITCH

Cyanamid's Levin: "Fashion weaves a magic spell on sales."

Designing for Fiber Sales

This week, with fall apparel promotions going full blast, American Cyanamid Co.'s Fibers Division took the wraps off its "new look" in service selling—a program of design and style assistance to the textile and fashion worlds. Object: to win friends and sales for Creslan acrylic fiber. At stake: a 155-165-million-lbs. acrylic fiber market (CW, Oct. 3, p. 75).

Cyanamid's creative apparel-design service (claimed by the firm to be the first offered by a synthetic fiber maker) represents a new high in chemical fiber producers' involvement in technical and related services to the textile trade. Until now, most services such as those for rival acrylic fibers—e.g., Chemstrand's Acrilan, Du Pont's Orlon, as well as several newcomers—

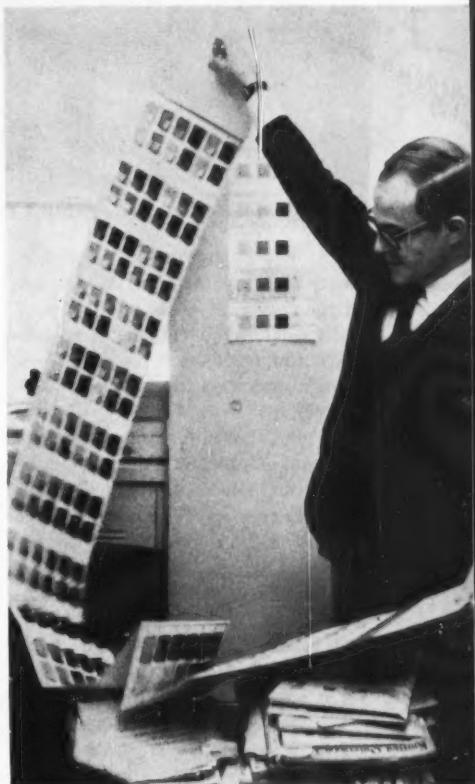
stopped short of actual apparel design. Cyanamid, with the hiring of a well-known apparel designer to work with its customers' customers, will try to create sales by winning over an important but neglected influence in the complex fiber distribution chain—the designer of the garment.

Behind the Move: A great deal of the responsibility for new styles and garment designs, Cyanamid feels, lies with the garment designer, whether he is an independent or is employed by a manufacturer. These people are constantly seeking new ideas and approaches to nebulous "customer appeal."

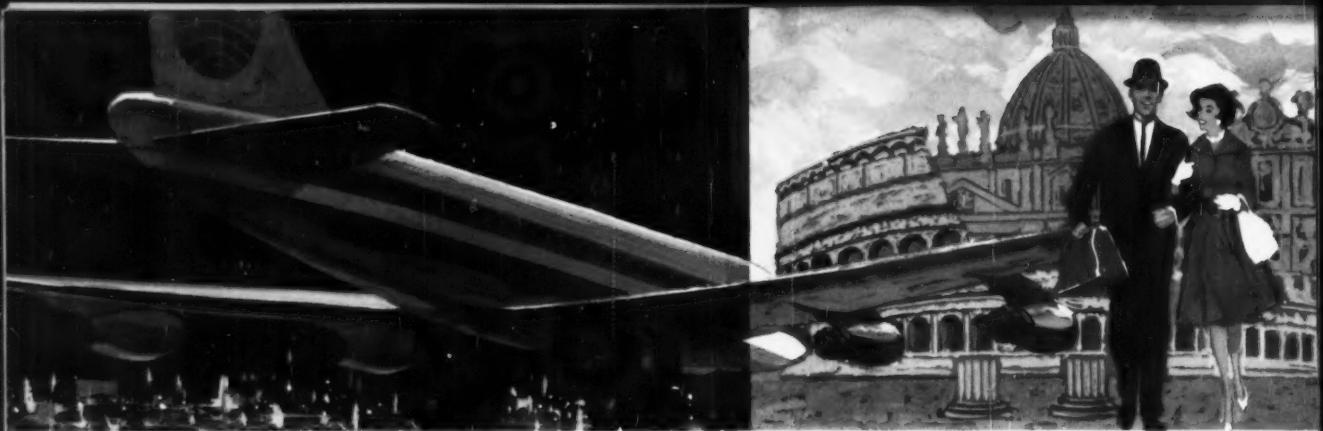
Cyanamid believes the designer has largely been neglected by fiber makers. It will try to reach him



Levin will stress 'hand' and texture as key fashion qualities of Creslan.



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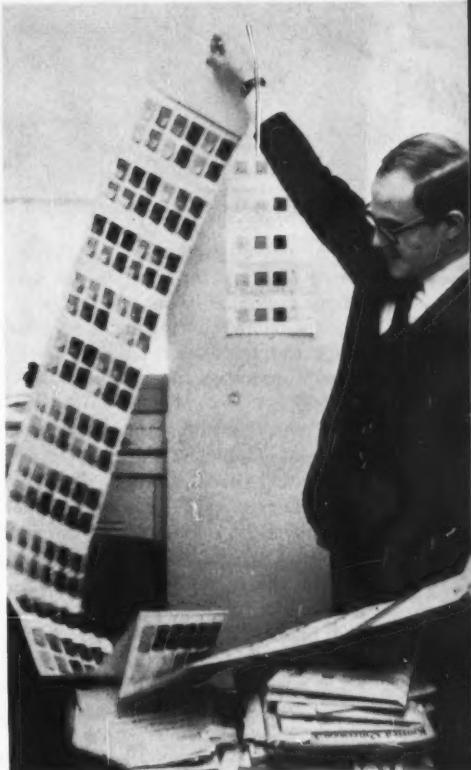
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'Delicious colors' will get big play in new pitch to garment designers.

SALES



For designers only—semiannual showings of Levin's new creations.

by hiring a professional designer. "After all," says A. R. Loosli, Fibers Division general manager, "who is better qualified to talk the same language and try to understand the designer's problems than another designer?"

To carry out its designer service program, Cyanamid hired Maurice Levin, well-known garment designer. Levin is experienced in many of the areas of design that might be right for Creslan. Cyanamid says his main function will be to aid designers by helping to spark new color, fabric, yarn and silhouette ideas. And the "feedback" from his contacts is expected to guide internal development programs.

George Vescio, sales manager for knitted goods, tells *CW*, "We believe Mr. Levin's experiences in the trade should help guide our efforts to improve fiber properties, yarns, fabrics,

and knits, and even help in planning the introduction of new fibers."

Long before setting up the designer service program, Cyanamid's Fibers Division management sought some kind of unique effort to give Creslan an advantage over the 30 other highly competitive synthetic and natural fibers.

Moreover, with stakes so high—huge production, promotion, merchandising costs—and with such a complex distribution pattern to influence, no hit-or-miss plan could be considered, according to Cyanamid.

It Takes Two: As finally set up, the designer service program actually meshes the services of two professional designers—Maurice Levin, who directs the effort as a Cyanamid employee, and Ted Bodin, a well-known knitwear designer, retained as a consultant. Working together, they are

expected to provide designers with a constant stream of new ideas relating to yarns, fabrics, construction, textures and over-all garment design.

Bodin and his staff will function primarily in translating new concepts into actual knitwear products. Along with his contributions on design, Bodin will work out any kinks in the garment production, check costs to be sure the knitwear is competitive.

Levin will supervise the program and administer numerous other facets of the many-sided venture. Among his additional duties:

- To make regular calls on designers, keep abreast of problems, present new ideas.
- To plan and implement semi-annual designer preview shows. At least 25 original creations will be shown at spring-summer and fall-winter showings.
- To send garment makers the late trade talk, aimed at keeping Creslan in designers' minds.
- To search for new and different styles—personal design work.

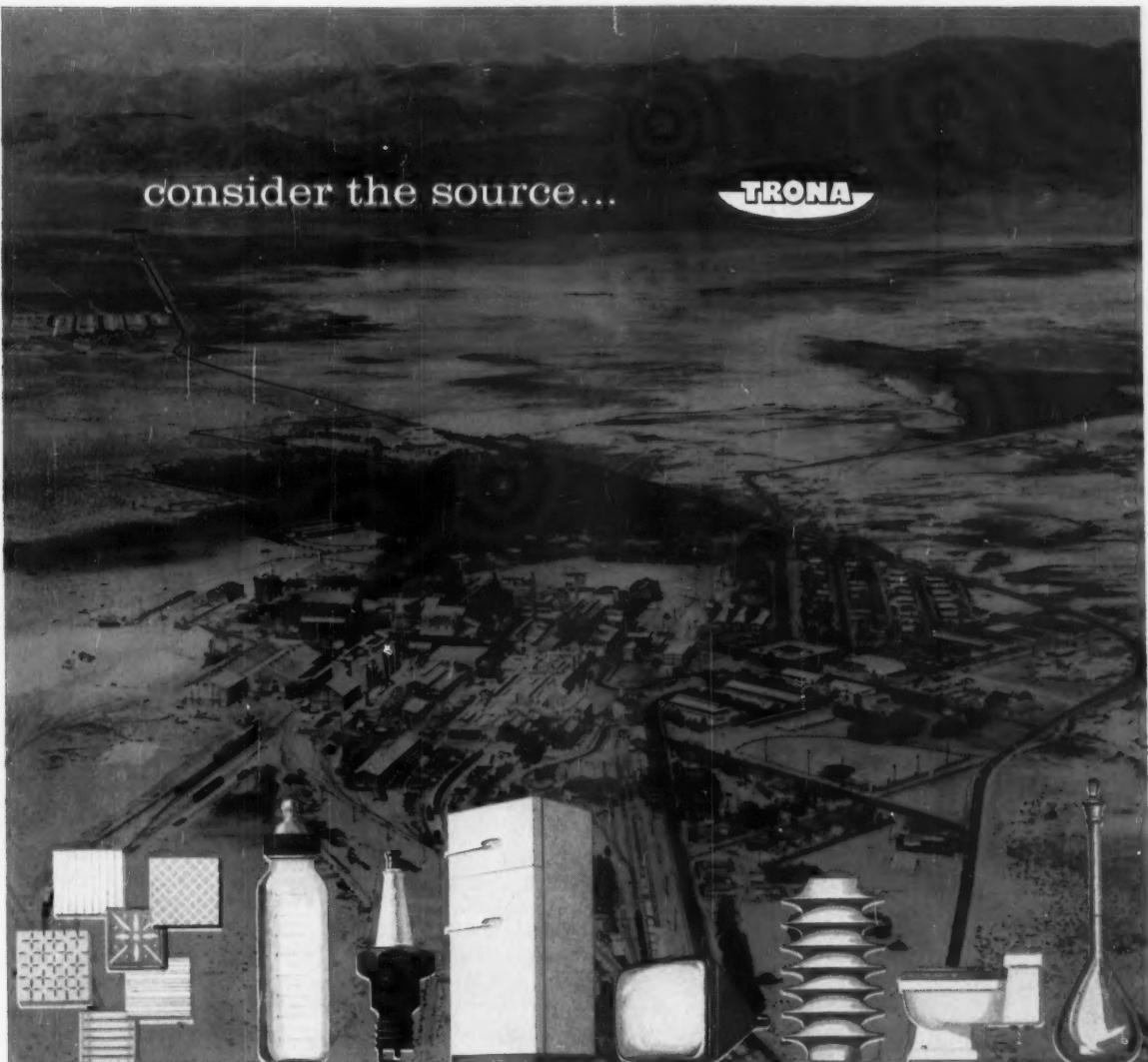
Besides his field contacts and personal design effort, Levin will do some "historical research"—seeking out old fabrics, garment styles and colors at Brooklyn Museum's costume laboratory. He will also keep the Fibers Division sales staff informed on the trends in the fashion world.

Levin's efforts will be pitched, according to Cyanamid, to the design level, not at merchandising or promotion. Thus, Cyanamid figures its fashion coordinators—who usually are concerned with marketing and retailing—will be needed as much as ever to tie together the diverse functions of garment styling, advertising and promotion, and retail selling.

"Our broad designer service," says Vescio, "covers the whole field of design, including color combinations, new knitted textures, new 'hand,' new looks in styling."

Gearing Efforts: General Manager Loosli emphasizes that Cyanamid "is going to gear its effort to the season-to-season trends of the fashion market. For one thing, the relative emphasis of design work in various areas of manufacturing may change from time to time."

And Loosli and his staff are aware that some designers may not be interested in Cyanamid's service. For one thing, they may feel that the



consider the source...

TRONA

from one plant...two essential chemicals

BORON and LITHIUM for better ceramic products

In the production of quality ceramic products first consider your raw material source. TRONA® is a prime supplier of not one but *two* vital chemicals for making enamels and ceramic glazes tougher, harder, more adherent; for making glassware brighter and more durable. As the only producer of both BORON and LITHIUM, American Potash & Chemical Corporation offers these one-source advantages: better understanding of your problems, broader research and development background, and on-the-spot field service.

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SALES

creative nature of their work and their pride of accomplishment preclude acceptance of outside design help. In such cases, Cyanamid's service will take the form of making style information available upon the designer's request.

Still another problem under study is the matter of granting exclusive rights to a Cyanamid creation, in the event the same creation is wanted by several garment manufacturers. At present, however, Levin's work is to be equally available to all designers.

What's Next? Technical service has paved the way to ever-greater fiber sales since the early '20s, when Du Pont first offered rayon viscose fiber to the textile trade. So it's a good bet that fiber marketers will closely watch Cyanamid's newest marketing venture. Any new approach that helps sell fibers is sure to be carefully observed. And for good reason—fiber makers are all after a market that may hit 1 billion lbs./year by '65.

Our work in the promising—but relatively undeveloped—field of pyrrolidine chemistry has led to the development of an interesting series of nitrogen heterocyclics. This group of unusual, difficult-to-obtain, synthetic pyrrolidine derivatives (with boiling points ranging from 80.5° C. to 201° C.) includes:

N-Dimethylpyrrolidine Chloride
N-Butylene Pyrrolidine
N-Methyl Pyrrolidine
Pyrrolidine Carbonate
N-Hydroxy Ethyl Pyrrolidine
N-Hexyl Pyrrolidine

A series of 3, 5 disubstituted pyridine derivatives are also available. Typical compounds in this series are:
3, 5 Dimethyl Pyridine
3, 5 Diphenyl Pyridine
3, 5 Dimethyl Pyridine

Some of these new compounds are being used in extraordinary and profitable ways. While SECURITY (ah, this atomic age!) prevents us from disclosing the exact who and how of these uses, we would like to tell you what we know about the performance characteristics of the nitrogen heterocyclics. If you have more than a casual interest in these specialized chemicals, we suggest your investigation begin by writing for our latest technical bulletins and for sample quantities. If your development is somewhat further along, we're available for consultation.

Nitrogen Heterocyclics

An appeal to the ICC order filed by American Trucking Assns. and others argues that the rights granted were in violation of Section 210 of the Interstate Commerce Act. That section prohibits "dual operation"—common carrier authority and contract carrier authority by the same carrier in the same area.

The section was written to apply to trucking firms, not railroads, but truckers are claiming that the section should apply to railroads when they are involved in trucking. This is one issue the court is expected to decide.

Observers see several possible outcomes, because of the number of legal points raised by the appeal. One possibility: a strict interpretation of the Interstate Commerce Act, which would restrict railroad trucking to a supplementary and auxiliary role. On the other hand, observers say, a Supreme Court ruling supporting the ICC order would, in effect, open the door for even greater growth of railroad trucking operations.

DATA DIGEST

Chemical process industries traffic managers last week were carefully pondering the possible outcome of an upcoming U.S. Supreme Court review of a major transportation case. At stake: the future of railroad trucking subsidiaries, used to an increasing extent by CPI shippers.

At issue: whether railroads legally can engage in a trucking service other than that which supplements their rail service. Many railroads have trucking subsidiaries to provide transportation in lieu of rail service—in areas where the latter is unavailable, for example. One prominent example is the New York Central System's Flexi-Van Service—a combination rail-highway service featuring the piggybacking of truck trailers.

Lately, however, the Interstate Commerce Commission has been granting railroad trucking subsidiaries the authority to operate trucking facilities independently of rail service.

Such an ICC authorization to the Pacific Motor Trucking Co., subsidiary of Southern Pacific Railway, caused the current litigation. Under ICC order, Pacific Motor was granted highway contract carrier rights to haul automobiles from General Motors' plants in California to points in Western states.

• **Polyester Resin:** Two new bulletins give information on a polyester resin derived from the reaction of a bisphenol derivative with fumaric or maleic anhydride. One bulletin discusses properties and uses, the other describes a room-temperature curing system. Chemicals Division, Atlas Powder Co., (Wilmington 99, Del.).

• **Silicone Fluids:** Loose-leaf design file with charts provides mechanical data on silicone fluids. Material includes data on viscosity-shear relationship of dimethyl oils at high shear rates, effects of silicone fluids on elastomers, and advice on when not to use a silicone fluid for certain applications. Silicones Division, Union Carbide Corp. (New York).

• **Urea:** Folder gives properties, specifications, and shipping information for crystalline and prilled urea. Chemicals Division, Olin Mathieson Chemical Corp. (Baltimore).

• **Lithium Metal:** New eight-page data sheet discusses properties, uses and shipping details of lithium metal. Properties covered: physical, chemical, thermodynamic, optical. Typical applications: organic reactions, metallurgical uses, heat exchange medium in nuclear reactors. Foote Mineral Co. (Philadelphia 44).



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MARKETS

Looming Question for Polyvinyl Alcohol Producers

This much capacity is in operation

Company	Plant	Tradename	Capacity (million pounds)
Du Pont	Niagara Falls, N.Y.	Elvanol	25
Shawinigan Resins	Springfield, Mass.	Gelvatol	5
Air Reduction	Cleveland, Ohio	Vinol	2
	Bound Brook, N.J.	"	0.5
Borden	Leominster, Mass.	Lemol	2.5
American Aniline	Calvert City, Ky.	Orthosize	1.25

This much is under construction

Air Reduction	Calvert City, Ky.	Vinol	20
Shawinigan Resins	Springfield, Mass.	Gelvatol	5
Borden	Leominster, Mass.	Lemol	5

Where Will All the New Production Go?

Polyvinyl alcohol (PVA) expansions are now well under way; and by mid-'60, U.S. capacity will have been increased more than 83%. Right now, however, production is only 64% of producers' output potential. There is, nevertheless, substantial reasons for manufacturers to add to their facilities—i.e., the big new potential of PVA films and fibers, plus growth of existing markets.

Here's how the market shapes up:

- Largest expansion is Air Reduction Chemical Co.'s new, 20-million-lbs./year plant at Calvert City, Ky., due onstream early in '60. This will make Air Reduction the second-largest PVA producer. The company also started up a pilot plant at Bound Brook, N.J., about the middle of this year, and this operation is also supplying PVA resins.

- Shawinigan Resins Corp. is now in the process of doubling capacity at its Springfield, Mass., plant. Ultimately, the company's output will be about 10 million lbs./year.

- Borden Chemical Co. is expanding its operations at Leominster, Mass., by 5 million lbs./year. This

plant is also due onstream early in '60.

- Reynolds Metals started up a new PVA film plant at Grottoes, Va., about a month ago, making it the largest of two producers of this type of film. The other producer is Mono-Sol Corp. (Gary, Ind.).

Film Market Is Big: Current PVA production is about 22-23 million lbs./year. Of this total, about 7-8% goes into film—about 1.5-2 million lbs./year.

Largest application is for bag or vacuum molding of reinforced plastics products. But the big potential market, the one PVA producers are watching closely, is in consumer packaging. Major attraction of PVA films is their water solubility. According to W. J. Vogel, general market manager for Reynolds' plastic market sales, "Water-soluble PVA films are already being used in the packaging of products such as pesticides, tints, detergents and insecticides, and this market is only starting to grow."

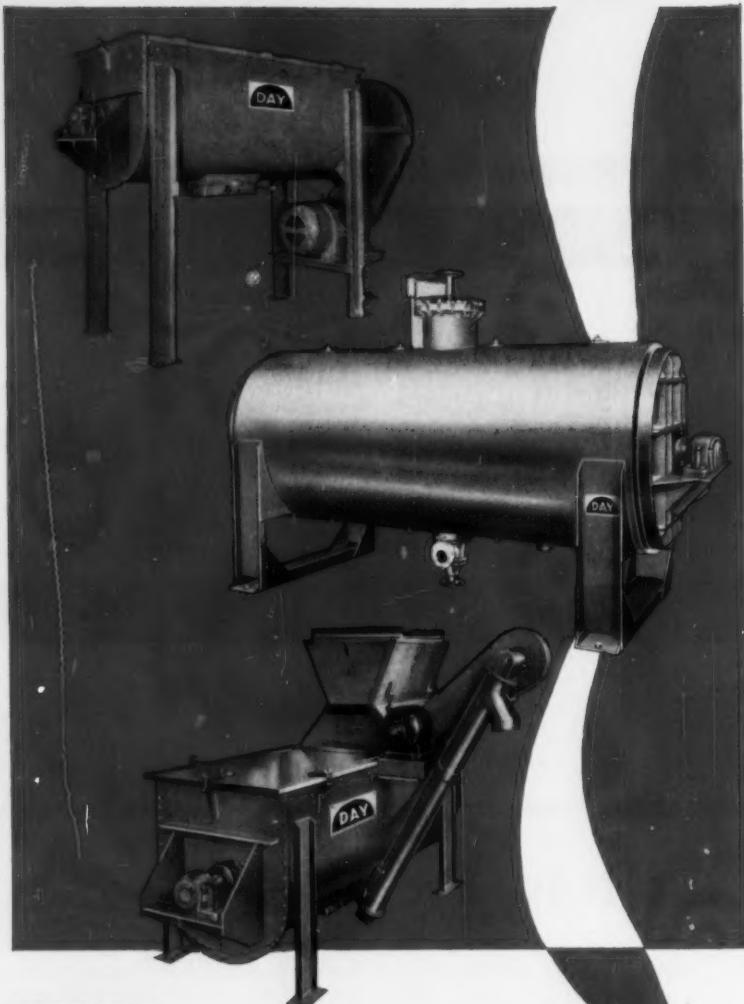
Use in packaging of detergents is one of the brightest prospects for PVA films, and it's being investigated by all of the large soap producers.

Major advantage is that it offers the housewife premeasured products in a package that dissolves when added to water. One West Coast company is already on the market with such a syndet, called Toss.

Reynolds forecasts that PVA consumption by consumer product packagers will rise to 6-8 million lbs./year by '65. However, this projection could be dwarfed if some PVA packaging obstacles are overcome. Most important is the development of equipment to handle and package goods at high speed, either by modifying existing equipment or by designing new machinery.

Another film application that looks promising is as a protective coating for building materials and equipment. Youngstown Kitchen is using this technique with its products: the PVA film is applied to the plastic tabletopping before the top is heat-bonded. The PVA film can then be stripped off when the kitchen equipment has been fully assembled.

Fibers Still Uncertain: In Japan, PVA finds a large market in the production of vinyl textile fibers,



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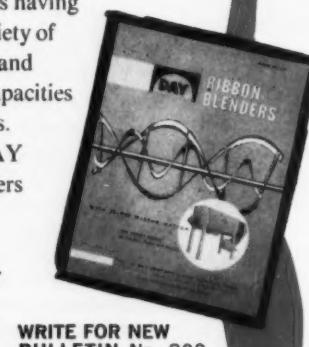
for perfect blending of powders, pastes or liquids. DAY builds ribbon blenders having rugged tanks of many designs, in a variety of materials . . . with powerful drives . . . and various types of agitators . . . in capacities that range from $7\frac{1}{2}$ to 3850 gallons. Often combined with such allied DAY equipment as Ro-Ball or Brush Sifters that save floor space and increase your efficiency. Whatever your mixing requirements, there's no better buy than a low cost, trouble-free DAY Ribbon Blender!

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M A R K E T S

Polyvinyl Alcohol

End-Use Pattern*	(Million lbs.)
Adhesives	10.5-11.5
Textiles	3.5-4
Paper	2
Emulsification and protective colloid	2.5-3
Film	1.5-2
Miscellaneous	2.5-3

* Does not include PVA used in manufacture of polyvinyl butyral.

which are used to make knitwear, cloth and rope.

In the U.S., this market is uncertain, and no full-scale production of PVA fibers has yet been undertaken. But Air Reduction is working on the development of fiber applications, has licensed the Japanese vinylon process developed by Kurashiki Rayon Co., Ltd., and continues to import fiber for product and market evaluations.

If this market develops favorably, it would absorb a sizable part of the new PVA output.

Adhesives—a Big Market: Largest share of PVA's production goes into the adhesives market, which consumes 10.5-11.5 million lbs./year. Big outlets for the resins are as a remoistenable adhesive for envelopes and labels, and as an adhesive for laminating applications.

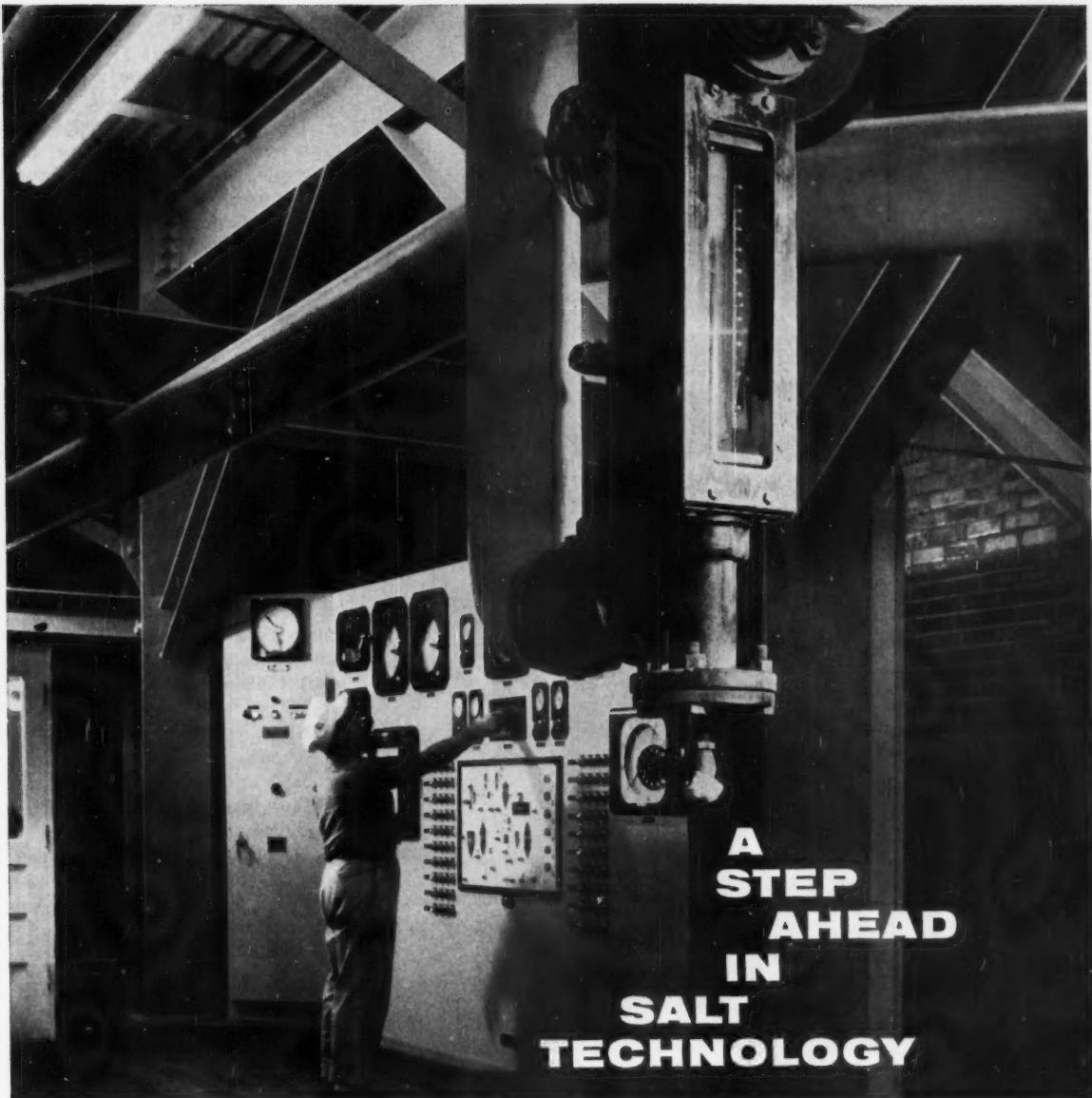
Growth in this area is expected to continue at about 7-8%/year, as more machines are developed to handle the resins.

Paper-Growing, Too: Current use of PVA resins in paper applications, for coatings and sizes, is still small—about 2 million lbs./year. But PVA's potential in some of the paper applications is large.

One important application is in improving the printability of paper. This is becoming an important factor to paper manufacturers trying to upgrade their products.

Another important, expanding use is as scuff-resistant coating for returnable cardboard cartons.

Grease-resistance, also, can be imparted to paper by using PVA coat-



A
STEP
AHEAD
IN
SALT
TECHNOLOGY

Control panel of automatic Recrystallizer plant. Photograph by Loebel.

International discovers new purification process...brings automation to salt refining

Last fall, after more than a decade of research, International Salt Company perfected the first new method of salt refining in over 150 years. This process has as its basis one of the most unusual facts in industrial chemistry: The major impurity in salt crystallizes out of solution as the temperature rises . . . while salt itself crystallizes out as the temperature drops.

In International's new process, a slurry of salt and brine is heated to 225°F. The salt goes into solution, and im-

purities (which remain undissolved) are separated out. Then the brine is flash-cooled to 140°F. Now pure salt crystallizes and is filtered out while any remaining impurities go into solution.

This process makes possible, for the first time, continuous, automatic refining of salt. With one man in control, International's new Recrystallizer at Avery Island, La., produces high-purity salt in one-third the time of conventional purification.

The scientific skill and research facilities that provided this "step ahead" are also at the service of any salt-using company. Contact International Salt Company, Inc., Scranton 2, Pa., or any of the offices listed below.

STERLING SALT . . . product of INTERNATIONAL SALT CO., INC.

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M A R K E T S

ings. These papers are used in the packaging of bakery goods.

Two other PVA applications that bear watching: the use in paper coatings as a gas barrier, and as a pigment binder for decorative coatings.

Steady Growth Ahead: About 3.5-4 million lbs./year of PVA resins are used by the textile industry for sizing, finishing and as a binder for non-woven fabrics. Growth in this area is expected to continue averaging about 5%/year.

Another sizable outlet for PVA is as a protective colloid in polyvinyl-acetate (PVAc) emulsions. About 3 million lbs./year go into this end-use, nearly two-thirds of it being used captively. This is another market figured to hike demands for PVA.

Still another application that may help boost sales of PVA is synthetic sponge manufacture. Simoniz has long offered a PVA sponge, insolubilized with formaldehyde, on the consumer market. This outlet is currently rated at 750,000 to 1 million lbs./year of PVA.

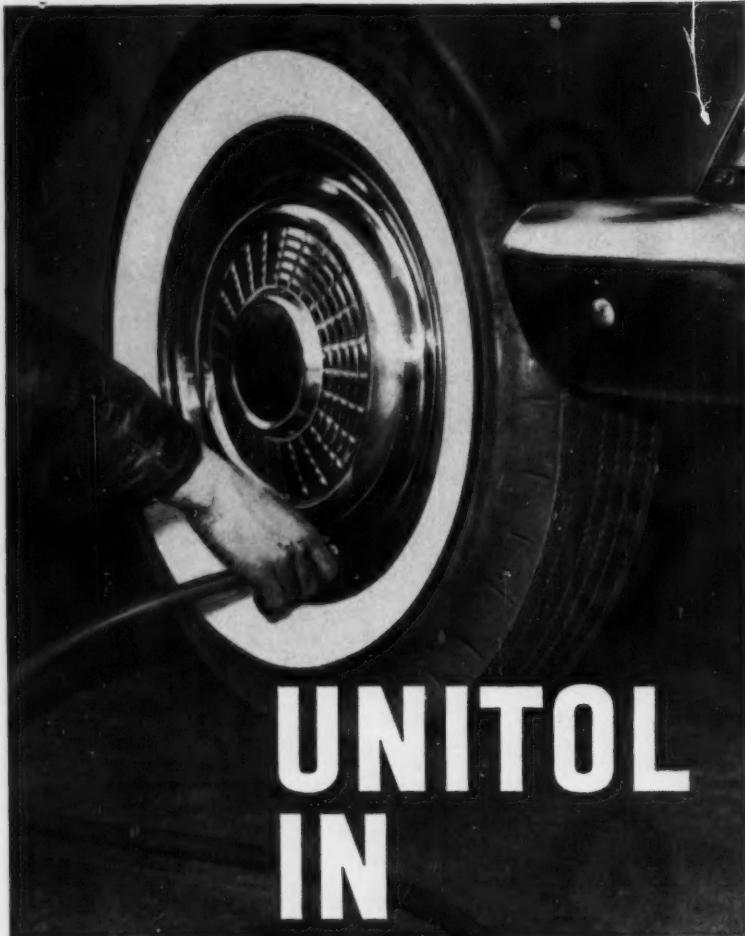
Although growth of PVA resins will probably continue strong during the next few years, it's obvious that unless large consuming end-uses, such as film applications and fiber outlets, open up during the next year or two, producers will have more than sufficient capacity.

M A R K E T P L A C E

Price of glacial acrylic acid was reduced 7¢ to 57¢/lb. (in truckloads and carloads, effective Oct. 15) by Rohm & Haas. The acid is now supplied with 0.02% inhibitor (mono-methyl ether or hydroquinone) instead of the former 0.10% concentration.

It's the second price cut within a year; the previous slash, from \$1.15/lb. to 65¢/lb. (less than carloads), was posted last year (*CW Market Newsletter*, Nov. 8, '58)—shortly after B. F. Goodrich came in as second producer.

*
Union Carbide Chemical Co. has completed facilities for the production of epoxides and other oxygenated chemicals at its Institute, W. Va., plant. Capacity will be in excess of 10 million lbs./year, although full production is not expected for several months.



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UNITOL ROS (tall oil rosin) is helping to satisfy the growing need for non-staining tackifiers used in rubber manufacture. Added during compounding, **UNITOL ROS** resists the migration of impurities that often cause staining in light-colored rubber products.

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... much faster evaporation than mineral spirits, low odor, over 100° F. flash point.

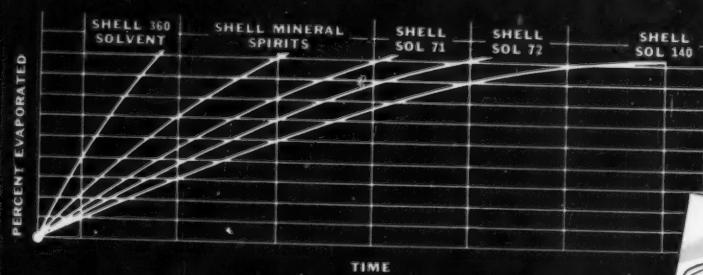
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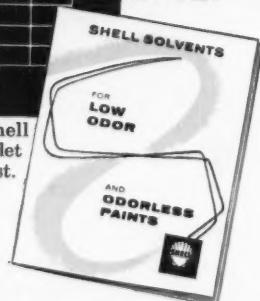
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Technology Newsletter

CHEMICAL WEEK
October 31, 1959

Some hints on Carbide plans for new plants were given last week by E. E. Fogle, president of Union Carbide Chemicals. Speaking at a banquet Tuesday evening, to a group of visiting professors, during the official opening of the firm's new Technical Center in South Charleston, W. Va. (*see also p. 23*), Fogle mentioned these items:

- Crag Insecticide Sevin (1-naphthyl N-methyl carbamate). The material is now being made in temporary units at Institute and South Charleston. It's been approved by Dept. of Agriculture for use on several crops, and Carbide is proceeding with a "vigorous" marketing program. A large-scale plant is being considered for Institute. To meet the demands of the 1961 crop season, the new plant would have to be in operation by next fall.
- Polyox water-soluble resins. The resin is now in small-scale production at South Charleston. Engineers are making preliminary designs for a large-scale plant.
- Peracetic acid derivatives. A commercial plant to make the acid has been completed at Institute. Multipurpose process systems have been installed to make epoxy derivatives. All told, 775 compounds have been synthesized; eight have been selected for commercialization, so far. Included: a soya oil epoxide as plasticizer for vinyls; the diepoxyde of dicyclopentadiene as a monomer for special high-temperature resins; didecyl epoxy tetrahydrophthalate, a vinyl plasticizer; and the diepoxyde of vinylcyclohexane, as a monomer for cotton-coating resins.
- Computer-controlled ethylene oxide production. One ethylene oxide production facility is being equipped with an instrumentation system that is controlled by computer. Carbide hopes to learn things from this that will enable it to control other oxide units, possibly other processes.
- Rocket fuels. Carbide had not previously indicated publicly its interest in rocket fuels. It has been investigating both liquids and solids, has analyzed needs for missiles and space vehicles, is now working up syntheses for promising compounds.

Another approach to low-cost nuclear power will be tried out by Martin Co.'s Nuclear Division (Baltimore) under a new AEC contract for \$838,163. The contract provides for the first critical experiment of a liquid fluidized-bed reactor (LFBR), a concept that Martin has been studying since '55. Key to lower cost: elimination of the need for control rods.

The reactor operates by forcing a stream of water (that acts as moderator and coolant) up through a bed of pelletized fuel. Critical mass is achieved by regulating the water flow rate, and control is exercised by the same means. Advantages claimed for the system: built-in safety

Technology

Newsletter

(Continued)

(malfunction disrupts water flow, thus breaking critical mass); simple fuel fabrication; continuous refueling by periodic replacement of a portion of the pellets; high heat-transfer efficiency; increased plutonium production by elimination of neutron-absorbing internal structural material. Martin emphasizes that work is still in the research and development stage, that many problems (especially involving fabrication) remain to be solved.

A new blood freezing technique that may permit indefinite storage was disclosed last week at Linde Co.'s Tonawanda laboratories. The key: the use of liquid nitrogen for rapid freezing of whole blood (fast enough to prevent formation of cell-damaging ice crystals) and for storage at -320 F.

"Recovery of 80-95% of red cells frozen indicates that we're on the right track," says Linde. But many problems remain, such as the development of sterile containers and economical auxiliary freezing and thawing equipment. To accelerate the development program, the Office of Naval Research has just granted Linde \$350,000 for expansion of its engineering investigations.

One by-product of Linde's research is a drop-freezing method that may prove useful for the long-range preservation of cells, such as the microorganisms used in the pharmaceutical industry. Drop-freezing involves spraying cells onto a cascade of liquid nitrogen. It's too cumbersome for handling blood because the entire apparatus must be sterilized each time 1 pt. is frozen. But Dr. A. P. Rinfret, supervisor of Linde's bio-research group, feels it has definite commercial potential for the preservation of fermentation cultures.

A new oral penicillin is being produced by Bristol Laboratories (Syracuse, N.Y.). Named Syncillin, it is potassium α -phenoxyethyl penicillin (chemically modified, fermentation-produced penicillin). Bristol says the new drug may avoid allergic reactions produced by older penicillins, may also prove more active against resistant germs.

Pfizer also disclosed this week that its new Maxipen penicillin (*CW Technology Newsletter*, Oct. 24) is α -phenoxyethyl penicillin made by synthetically linking α -phenoxypropionic acid with 6-aminopenicillanic acid. Pfizer says it has applied for patents covering the process.

Look for Warner-Lambert to enter the antibiotics field with colistin sulfate (Choly-Mycin), which is effective against Gram-negative bacteria (e.g., those that cause gastroenteritis). Details on the new drug will be given at next week's seventh annual symposium on antibiotics in Washington. Extensive clinical work on the drug has been done, but new drug application to the Food & Drug Administration has not yet been made.



THIS MUCH BUYS ONE POUND OF VINSOL*

In a day of increasing cost, Vinsol resin still remains constant in price—one of the few things that can still be bought for five cents.

Here are the facts you'll want to know about Vinsol:

- a high-melting thermoplastic.
- saponifiable by alkali to form soaps.
- reactive with aldehydes to form resins.
- dark colored, friable.
- substantially insoluble in aliphatic hydrocarbons.
- compatible with a wide range of resins and plasticizers.

Typical Properties

Melting Point (ring and ball)	112°C.
Acid Number	94
Gasoline Insoluble	83%
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Available in lump, flake, pulverized, and emulsion forms—as well as powdered sodium soap—Vinsol is finding ever-increasing use in industry. Further technical data is available from Hercules.

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NV59-2

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- No matter what your absorption problems may be, chances are you'll find the answer in Micro-Cel—Johns-Manville's new line of synthetic calcium silicates.

Pound for pound, Micro-Cel gives you far more absorption than common fillers like talc and clay . . . even outperforms products like silica gels selling for as much as 10 times Micro-Cel's delivered cost of 8¢ to 10¢ per pound.

Dollar for dollar, Micro-Cel's high absorption also wins out over both low cost and high cost fillers. Only 28¢ worth of Micro-Cel will convert a full gallon of liquid to a dry free-flowing powder. As little as 12¢ worth provides ultimate absorption of a gallon of water.

Industry is putting these properties of Micro-Cel to work in several types of applications: as an

absorptive carrier to convert a liquid to a dry free-flowing powder; as a means of drying semi-solids to desired degree; to disperse liquids uniformly in a dry compound; to absorb moisture and reduce drying costs; to control liquid viscosity up to a paste or semi-solid; to assure good free flow properties of deliquescent crystals or powders.

Micro-Cel, the powder that flows like a liquid is a new line of inert synthetic calcium silicates produced by combining lime with diatomaceous silica under carefully controlled conditions. In addition to high absorption, it provides particle size as small as .02 micron and bulking action up to a full cubic foot for every three pounds.

For further information, samples and technical assistance, write to Johns-Manville, Box 14, N.Y. 16, N.Y. In Canada, Port Credit, Ontario.

One pound of
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SPECIALTIES



CW PHOTOS—DOUG KIRKLAND

Time out at Atlantic City between business sessions as NPVLA members relax on the boardwalk.

Paint Makers Take Stock at Atlantic City

Last week, Atlantic City, N. J., became the coatings center of the world. The National Paint, Varnish and Lacquer Assn. and the Federation of Paint and Varnish Production Clubs both held their annual meetings in that city. Also on hand were the 106 exhibitor companies that showed their wares at the 24th Paint Industries' Show.

Early in the week, members of the NPVLA were told that '60 should bring sales in excess of \$2 billion—a record for that industry. For '58, sales were pegged at about \$1.75 billion by Joseph Battley, NPVLA president.

If members wondered how they were going to boost sales by another quarter billion dollars in '60, there was free advice aplenty being offered by raw-material suppliers at the Paint Industries' Show. Some highlights:

Latex Minded: The major emphasis in the exhibits was, as it has been in recent years, on water-dispersed

systems for both architectural and industrial coatings. This year, the big push is for latex systems for exterior house paints, and makers of both polyvinyl acetate and acrylic resins were beating the drums hard for their products. Both systems have had extensive weathering tests and show good results in external applications on both masonry and wood surfaces. It would appear, however, that polyvinyl acetate makers have a slight edge competitively at this time.

While suppliers of the acrylic systems are busily pointing out the defects of the PVAc systems and vice versa, the industry is sympathetically amused by the dilemma of companies whose divisions are promoting both items.

Nothing that could be characterized as a "breakthrough" was shown in the latex field. And until someone comes up with a latex that needs only simple priming of base wood, it doesn't look as if either PVAc or acrylics will sweep the other from

the field — except possibly on a cost basis.

On water-soluble resins for industrial finishes, acceptance is slow. Archer-Daniels-Midland's Arolon 1000 for industrial top coats and Arolon 304 for industrial primers are probably the closest, at this time, to meeting requirements for water-based industrial finishes. One major problem for such systems, thus far: long flash-out time. Assembly lines are geared to rapid drying of solvent-type finishes and these lines cannot be held up for long periods before baking while water escapes.

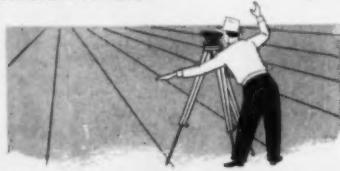
S. C. Johnson & Son (Racine, Wis.) recently entered the coatings field in this area with a water solution coating system containing diphenolic acid. This coating, when used as a bake finish on metal utilizing water as the sole solvent, is said to cure rapidly (20 minutes at 250 F), have good adhesion to unprimed metal and show good salt-spray, grease and detergent resistance. However, Johnson

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Microscopic particles of carbon black have some fascinating powers. For instance, take the selective attraction for ions... the proper grade of colloidal carbon in a solution of ordinary salt will exchange hydrogen for the sodium ions... leaving the chlorine as HCl! Presto! — an acid out of a neutral solution —



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SPECIALTIES

points out that systems based on DPA are not now suitable for white enamels — a seriously limiting factor.

Epoxy Breakthrough? Not all the interest at the show was with water-based materials; there were some significant, noteworthy developments in other areas.

Shell Chemical Corp. (New York) unveiled a system for spraying a 100% epoxy coating with conventional spray equipment. Key to the system: the development of two curing agents — Epon H-1 and H-2. With these new curing agents, it's possible, says Shell, to apply single coats up to 10 mils without bubbling or sagging from a vertical surface. Use of the new hardeners with solvent-type coatings will provide a usable pot life of several weeks as opposed to one day with previously available curing agents, says Shell.

And Union Carbide Plastics Co. (New York) also showed something new in the epoxy field at the show, introduced a pair of epoxy resins, ERLB-0100 and EKRA-2131. Both are said to show great promise in fluidized-bed coatings.

ERLB-0100 is a highly epoxidized resin with a low epoxide equivalent and imparts rigidity and heat resistance to the coating. EKRA-2131, on the other hand, having a much higher epoxide equivalent, imparts greater flexibility and heat resistance to the cured resin.

Union Carbide also demonstrated the new method it has developed for the production of epoxy ester coatings. Using only a liquid epoxy, ERL-2774, bisphenol A and any drying acid, a varnish can be prepared in two simple steps. The resulting product is said to have properties equal or superior to those prepared from drying acids and esterification-grade epoxy resins.

Basis for the new techniques is the preferential reaction of the epoxy group with carboxyl groups before reacting with aromatic hydroxyl groups in a mixture where all three are present. By proper proportioning, ERL-2774, bisphenol A and a fatty acid can be reacted to produce an essentially linear epoxy of any desired chain length, terminated at each end by a fatty acid group. This intermediate compound is then further reacted with fatty acids to produce the desired degree of esterification.



NPVLA's Battley: For '60 he predicts a record, \$2 billion in coatings sales.

Polyester Resins Rising: If the interest shown in polyester resins at the show is any indication, coatings made from resins such as those shown by Naftone Inc. (New York) appear to have a brighter future. Naftone is selling a line of resins made by Farbenfabriken Bayer AG., and sold under the Roskydal trademark. These resins are wax free (probably to get around the Bayer patents) and cure at room temperature or can be baked.

But using coatings made from these resins is expensive—three coatings are needed to provide the 8-mils-thick finish usually called for. These heavier coatings aren't used in competition with other coatings. They are used to replace veneers and melamine-type laminating materials, e.g., Formica and Micarta.

What has helped spark new interest in polyesters is the development of coatings which require much less hand finishing than former types. This makes them more attractive to U.S. furniture makers who formerly were not ready to pay for the labor required for hand work. Sure to boost usage of these finishes are such applications as coatings for the growing chipboard industry.

Air-Drying Industrial Finish: Archer-Daniels-Midland this year introduced its Aroplaz 6006, an air-dry resin for industrial finishes. The company reported that it sets tack-free in about five minutes and hardens into a tough, glossy finish without baking. This compares, says A-D-M, with 10

Perhaps she was confused by TV commercials and used the wrong detergent. But the porcelain enamel finish will take the suds. No other type of finish can compare with porcelain enamel for beauty and resistance to all household hazards.

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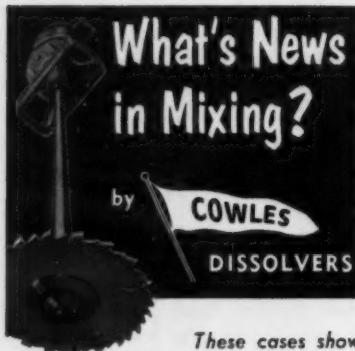
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High viscosity mastic compounds that used to take hours via old "Z" blade methods, are now prepared in minutes with the Cowles. The Cowles delivers maximum horsepower at all impeller speeds.
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minutes for a very fast styrenated alkyl and 30 minutes for a very fast pure alkyd. The resin, a pure oxidizing-oil-modified alkyd, is expected to find application as a finish for farm and construction machinery, metal furniture, and for automobile repainting. The resin is furnished at 50% solids in xylol and can be cut back with aliphatic as well as aromatic solvents.

A-D-M is also showing its new external emulsion, tabbed Arolon 210.

Prepackaged Mildewcides: Metasol Div. of Metalsalts Corp. (Hawthorne, N. J.) showed its latest entry in the mildewcide line. It's now packaging its Metasol 57 (phenylmercuric propionate) in ¼-, ½- and 1-lb. water-soluble methyl cellulose film bags.

Sum-up of these top attractions at the show: there's no doubt that latex paints are moving up to challenge oil-based paints for exterior use; faster air-drying enamels are here; epoxies have become easier to work with, polyester resins will get more usage as factory-applied finishes. All these factors should help lift the coatings field to the \$2-billion mark it's set for itself in '60.

PRODUCTS

Dog Dewormer: Capper Laboratories (9949 Santa Monica Blvd., Beverly Hills, Calif.) is marketing a conditioner and dewormer for dogs that's said to be effective against tape-, round-, hook- and pinworms. The nontoxic, powder-formula product is also claimed to give the animals glossier coats, improved appetites and sweeter breath. The 3-oz. size sells for \$1.10 postpaid.

Cutting Coolant: Shear-Speed Chemical Products, division of Michigan Tool Co. (7125 East McNichols Rd., Detroit), has developed a coolant for cutting and grinding operations where fine tolerances are required. Called Kleer-60, the soluble oil is said to provide a high degree of work visibility, low surface tension, and to be nonfoaming and bacteriostatic.

Urethane Catalysts: Metal & Thermit Corp. (Rahway, N.J.) now offers four catalysts—two organo-tins and two inorganic tin compounds—for one-shot urethane foams. The organo-tins are dibutyl-tin di-2-ethylhexoate

and dibutyl-tin dilaurate; the inorganic compounds are stannous octoate and stannous oleate.

Paint Stripper: North Shore Laboratories (P.O. Box 568, Salem, Mass.) is marketing an aerosol paint stripper for removing polyurethane and other types of protective coatings. It is sold in 20-oz. cans at 70¢, also in bulk.

Acrylic Stripper: Patclen Chemical Co. Inc. (11-23 St. Casimir Ave., Yonkers, N.Y.) has introduced Patclen No. 217 for stripping baked acrylic resin coatings. The firm says the product is especially effective in removing primed coatings from phosphated bases. No mixing is necessary.

Natural Touch: Luba Beri Vitametrics, Ltd. (45 West 56th St., New York), has developed a line of custom-made facial cosmetics including cream, lotion, masque and powder base. The products, which are made from pineapples and contain vitamins B and C, are said to be absorbed by the skin. (The firm also puts out a spinach-based cream.)

Plastic Nozzle: Continental Can Co. (New York) has developed a polyethylene nozzle with a permanently attached cap designed to increase the filling and closing speeds of round and oblong nozzle-type cans. Marketing of the product is aimed at packers of liquid floor waxes, insecticides, solvents and other products now packaged in threaded nozzle-type cans.

Book Adhesive: Borden Chemical Co. (New York) is offering a line of plasticized vinyl book-binding adhesives for use on a variety of book cover stocks in casing-in operations. The products are to be sold in 55-gal. drums.

Double-Duty Coating: Prufcoat Laboratories, Inc. (63 Main St., Cambridge, Mass.) is now distributing its Prufcoat Primastic, a protective coating claimed to combine rust-inhibitive primer properties with the chemical resistance of a catalyzed epoxy coating. It is reported to require only minimum surface preparation, needs no special application equipment.

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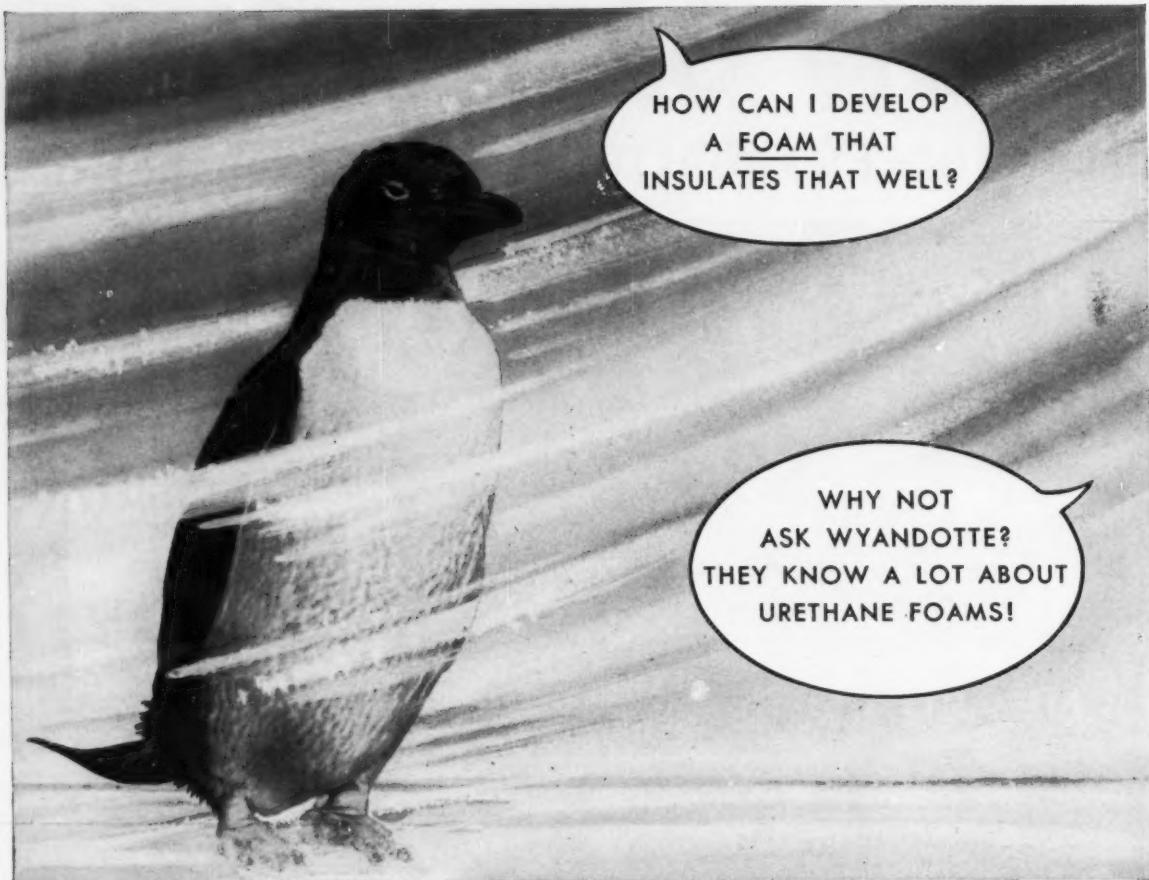
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Market Newsletter

CHEMICAL WEEK
October 31, 1959

Some major coal-tar industry problems, accentuated as the result of the current steel dispute, were highlighted at the annual meeting of the American Coke and Chemicals Institute, at White Sulphur Springs, W. Va.

One of the major difficulties listed by Allied Chemical's Tom Kinsella: inability of domestic consumers to depend upon foreign production as a source of material during an emergency. Naphthalene was his prime example. Demands for this material have been very high this year, due to increasing production of phthalic anhydride—up about 33½% over '58. Meanwhile, imports of naphthalene will be lower in '59 than in '58 (*CW, Oct. 17, p. 43*).

A related problem is the lack of markets for creosote and pitch, coproducts of naphthalene. With increasing demands for naphthalene, surpluses of these related products become inevitable. This emphasizes the need for obtaining naphthalene without incurring excess supplies of the coproduct.

High production of coke, during periods of low coal-chemical demands, could result in another long-term problem for the industry, according to Kinsella. Since producers tend to run coke ovens at high rates, even when business is slow, coal chemicals are produced in excess. Coke, which can be easily stored, is inventoried, but excess chemicals are burnt as fuel. Thus, when chemical needs rise, coke producers will be working off coke inventory, without producing new coal chemicals.

•
Heavy formaldehyde demand spurs a possible expansion on the West Coast. Borden Chemical is now shopping around for a site for a proposed 45-million-lbs./year formaldehyde plant, plus a 50-million-lbs./year resins and emulsion unit, to be located in the San Francisco area (*see p. 24*). Currently, the only other formaldehyde plant in California is Commercial Solvents' 30-million-lbs/year unit at Agnew.

The capacity of Borden's proposed plant is in line with the industry trend toward the construction of small units to handle local markets, rather than building large centralized plants, such as the older facilities found on the East Coast (*CW, Sept. 12, p. 103*). Chief advantage of this approach is the elimination of high freight costs on an inexpensive chemical.

Production of formaldehyde during August hit a record high of 148.1 million lbs. (37% material), for the month, when the industry passed the 1-billion-lb. mark. The previous August high was in '58, when production was 117.2 million lbs. Reports from the trade indicate that demand for September and October is still high. The formaldehyde pickup got under way the last 4-5 months of '58. Total output of 37%

Market Newsletter

(Continued)

formaldehyde in the 12-month period from Sept. '58 through Aug. '59 was 1.672 billion lbs. vs. 1.358 billion lbs. in the record year '58.

Vinyl resin sales for coatings will be up 30% in '59, total more than 85 million lbs., according to H. W. Greenhood, market manager, Union Carbide Plastics Co., at last week's Paint Industries' Show at Atlantic City, N. J. (*also see p. 63*).

Although the increases in the next few years won't be as great as in '59, vinyl sales for coatings will probably reach 130 million lbs./year by '63, said Greenhood.

To reach that level, vinyl sales will have to increase about 10%/year, a growth that is still above the normal economy growth of 3-5%/year.

The West Coast's largest liquefied gas plant for production of liquid oxygen, nitrogen and argon is now "officially" onstream at Linde Co.'s (division of Union Carbide) Pittsburg, Calif., layout.

Actually, first shipments left May 14, '59, from the plant's initial unit (165-tons/day capacity) (*CW, May 30, p. 90*). Construction of the second unit (135-tons/day capacity) was recently completed, raising total output potential of the entire plant to 300 tons/day—220 million cu. ft./month—of liquid oxygen, nitrogen and argon. Major use will be by Western missile, chemical and steel industries.

The Pittsburg plant is one of five new ones being built by Linde Co. in the U. S. Other units are planned for Torrance and Fontana, Calif., Neosho, Mo., and Huntsville, Ala.

Kaiser Aluminum & Chemical tripled "super-purity" aluminum capacity to more than 1 million lbs./year, with the installation of two refining cells at its Mead, Wash., reduction plant. This grade of 99.99% pure aluminum has been made at the Mead plant for four years.

Aluminum may have another outlet in the automotive field. A cast-aluminum muffler that "shows promise of outlasting the car" has been developed by Center-O-Cast and Engineering Co. (Detroit). The muffler, requiring 9-9½ lbs. of the metal, may be available to the replacement market by the end of '59.

SELECTED PRICE CHANGES—WEEK ENDING OCTOBER 26, 1959

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	Castor oil, imported, No. 1, Brazilian, tanks	\$0.0025	\$0.175
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	Zinc metal, prime Western slabs	0.01	0.13

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ENGINEERING

Private industry—on the outside, looking in



Reprocessing: Still Behind Economic Fence

There's no doubt that private industry is interested in nuclear fuel reprocessing, but it's also clear that some years will pass before anyone goes into this field. These were the chief conclusions to be drawn from last week's reprocessing symposium at Hanford, Wash.

A large turnout of industrial representatives came to hear the Atomic Energy Commission's first "how-to-do-it" session on processing of spent nuclear fuels. AEC, finally convinced that it will be a matter of years before industry can hope to take over the reprocessing job, concentrated on giving the attendees a meeting crammed with technical information rather than promotion.

In line with this approach, the practical end of reprocessing was discussed, centering on the various aqueous systems in use rather than on theoretical or untried methods (*CW*, June 14, '58, p. 39). Presentations made by personnel from each of AEC's four reprocessing plants centered on describing the proven, but different, techniques in use at each location.

Encouraging Turnout: A high level of industry interest in the subject was shown by a turnout of about 250 top-level nuclear experts from 75 companies. Attendees included nuclear industry management and technical personnel, private reactor operators, fuel fabricators, AEC contractor personnel and visitors from the United Kingdom Atomic Energy Authority and the Organization for European Economic Cooperation, as well as from Australia, Japan and Sweden.

Main reason for the interest: fear of getting left behind in the early stages of what promises to be big business some day. Companies must keep up-to-date on the subject if they have any thoughts of ever taking part in nuclear fuel reprocessing. A concern could miss out if it ignores the groundwork now being laid, according to the current feeling. However, comments at the meeting indicate that there will be no overnight decision to jump into the business.

Industry is maintaining its hesitant posture for two principal reasons: the large capital investment required

for such a plant and, more important, the slow rate of growth of the nuclear power industry, which would mean a low return on investment for a long time to come.

An additional stumbling block—technological uncertainty—is diminishing in importance. Indications are that current aqueous methods should be able to handle most fuel elements in the near future. According to AEC's production division director, George Quinn: "Development work on the aqueous dissolution processes has already reduced somewhat the concern of the chemical processor toward changes in fuel element composition and cladding materials."

An alternative that might appeal to private industry is "shirtpulling" on the reprocessing industry as it develops. For instance, an enterprising company may decide to take on the job of packaging spent fuel elements for the reactor operators, delivering them to the AEC for reprocessing.

AEC Grows Patient: The AEC is still anxious for industry to take over the reprocessing job, but it has resigned itself to the fact that the field

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ENGINEERING

is simply not yet sufficiently developed to attract private capital. And even if a private company should decide today to build a plant, it would be close to five years before the plant could be expected to be dependably onstream.

Meanwhile, AEC is adopting a policy of cooperating closely with industry, especially in the area of technical know-how (witness this meeting). AEC doesn't claim to have all the answers in the technical area. Quinn stresses that a close relationship between reactor operators and processors is necessary to work out the best type and size of plant for an initial operation.

Until an alternate processor is in business, AEC has agreed to handle spent fuel from private, public or jointly financed reactors. Assignments have already been made for fuels from 17 specific power and experimental reactors that are already in operation or under construction, as well as for those from research and test reactors using uranium-aluminum alloy fuels.

AEC plans to handle this processing load in its existing facilities, after making minor modifications. Variables such as batch size, liability and credits have been worked out to the point where the four installations are prepared to negotiate contracts with industry.

Contracts for AEC reprocessing are slated to remain in effect until June 30, 1967, with this proviso: should reasonably-priced private processing services become available, contracts with AEC would be terminated, upon no less than 12 months' notice. Cost of these services, originally scheduled to be \$15,300/batch/day, has been scaled up to \$16,200/batch/day to reflect the rise in equipment prices since the original notice in '57.

Choice of a plant to process a given fuel depends on the nature of the fuel. Here are the specialties of each installation:

- Hanford, Wash.—fuels of low enrichment (under 5%).
- Idaho Falls, Idaho—highly enriched fuels.
- Oak Ridge, Tenn.—thorium-type fuels and foreign-produced, 20%-enriched uranium-aluminum alloy fuels.
- Savannah River, S.C.—fuels of intermediate enrichment and long

Canadian natural-uranium fuel elements.

Twofold Objective: As Quinn puts it, the current AEC reprocessing program has two objectives: "First, to recover valuable nuclear materials, and second, to develop handling and processing techniques for power reactor fuels, which we hope will lead to establishment of a commercial processing facility." Judging from the attention shown at the meeting, such a facility is more than an idle dream.

Hardwood Newsprint

A new process for turning Southern hardwoods into high-quality newsprint will be commercialized by 1961. Noralyn Paper Mills, Inc. (Baton Rouge, La.), which developed the process with the Herty Foundation Laboratories (Savannah, Ga.), has contracted with H. K. Ferguson Co. (Cleveland) for design and construction of a \$40-million, 350-ton/day newsprint plant at Bueche, La.

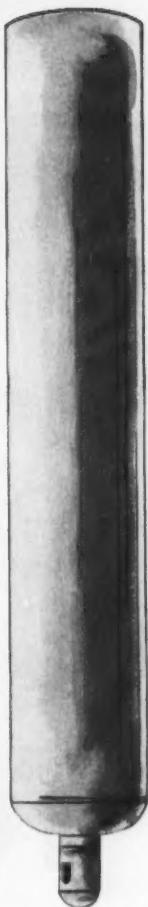
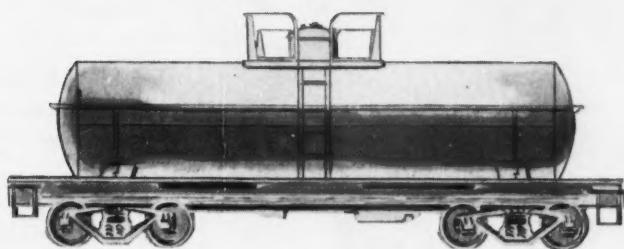
The still-undisclosed process transforms a variety of hardwoods found in the Mississippi delta region into newsprint claimed to be tougher and brighter than is obtained from commonly used Southern softwoods. Current use of hardwood in newsprint is limited to one Canadian company that uses it only as a filler.

Here's how the new paper stacks up, according to standard tests: photovolt brightness of 65-67 for the hardwood newsprint vs. 56-58 for the softwood variety; bursting strength of 10 psi. vs. 8 psi.; cross-machine tensile strength of 6 lbs. vs. 4 lbs. And the price of the new paper will be no higher than that of presently available product.

Pilot plant tests have proven out and five tons of the newsprint were used successfully in trial runs by the *New York Times*, *Milwaukee Journal* and *Savannah (Ga.) Evening Press*.

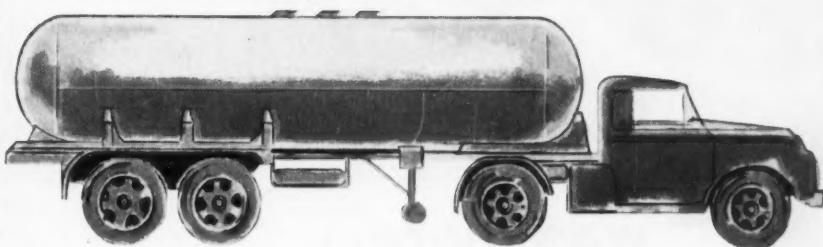
Versatile Feed: The new process, originated by Noralyn president Leo Stack, enables the company to use a feed consisting of a variety of hardwood species (e.g., gum, cottonwood, hackberry). This flexibility makes it possible to clean-cut forests of mixed trees.

The process, says Noralyn vice-president Jack Ainsworth, employs "orthodox paper-making equipment in



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Carbon dioxide	6 ppm
Water	25 ppm
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an unorthodox manner." Two pulping methods—one chemical and one mechanical—are used in combination to produce the feed for the paper-making machines.

PROCESSES

New Catalysts: Girdler Catalysts, a unit of Chemetron Corp.'s chemical products division (Louisville, Ky.), has developed a group of new catalysts for selective hydrogenation and reforming. Catalyst G-55 is designed for hydrogenating methyl acetylene and other unsaturates in concentrated propylene streams, while G-58 promotes hydrogenation of acetylene in concentrated ethylene streams. Both are promoted palladium catalysts, said to permit long operating cycles between regenerations, be capable of operation with ratios of less than 2-1 of hydrogen addition.

Designed for reforming light hydrocarbons such as natural gas, refinery gas, coke oven gas or refinery propane is the new G-56 catalyst. A nickel-base catalyst, it's intended for use where carbon deposition is to be avoided and where the feed stream contains unsaturates.

Natural Material Utilization: Reports from Communist countries indicate that low-grade vegetable materials are used for a variety of commercial products. Red China claims it is extracting gasoline "as good as ordinary gasoline" from pine needles. The needle oil is refined to produce a dye as well as gasoline. Other pine needle projects said to be under way: production of glue, insecticides and wood pulp (from the fibers left in the glue process).

U.S.S.R. claims successful operation of its new plants to produce cellulose and hemicellulose from reeds, says it plans to increase production by 500,000 metric tons/year. The Soviet Union is reported to have over 12 million acres of reeds, which could yield over 40 million metric tons/year.

Thin-Wall Teflon: A process for molding Teflon in thin-wall shapes has been developed by Chemplast, Inc. (East Newark, N.J.). Called Chemforming, the new process is said to produce far less scrap than the conventional method of thick-wall molding-and-machining. The method involves feeding powder through narrow openings into complex dies, followed by uniform application of pressure.

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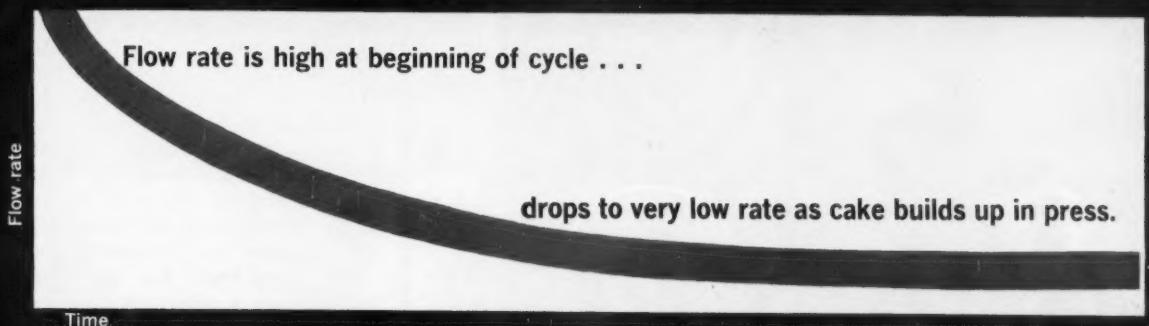
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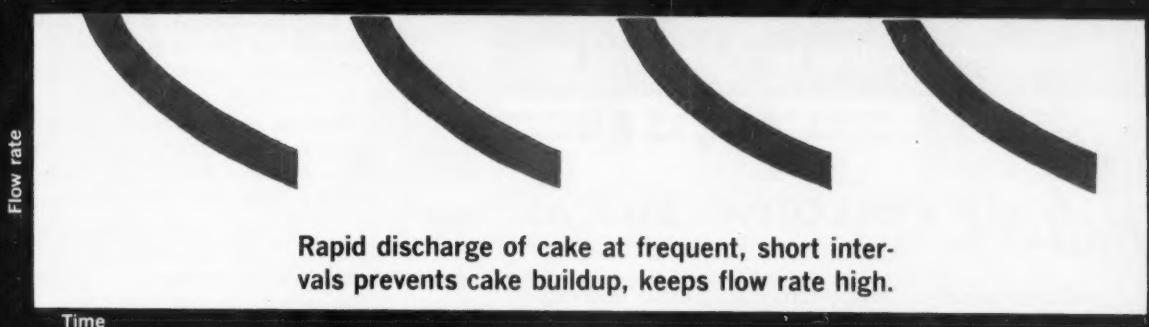
PRODUCTION

How short-cycle press cuts filtration time

In conventional plate-and-frame filter presses . . .



In new short-cycle press . . .



Squeezing Speed from the Filtration Curve

This week at York, Pa., Read Standard Division of Capitol Products Corp. is readying two new plate-and-frame filter presses for next month's Chemshow in New York. It is hoping the units, one for discharging dry cake, the other for wet cake, will stem the slow trend away from the plate-and-frame press—and the above chart shows why.

If the new units catch on, they will be the first plate-and-frame presses to exploit a basic filtration fact: at the beginning of the filtration cycle, slurry flow rate and filter cake buildup are at their peak.

Ordinary plate-and-frame presses can't economically take advantage of this because of the high cost—time and labor—required to open the press, clean the cloths and close the press

for the next run. Their filtration cycle is extended far beyond the high-flow-rate period. The press is usually opened only after the filter cake has built up on the cloths, filled the press chambers and choked off the flow.

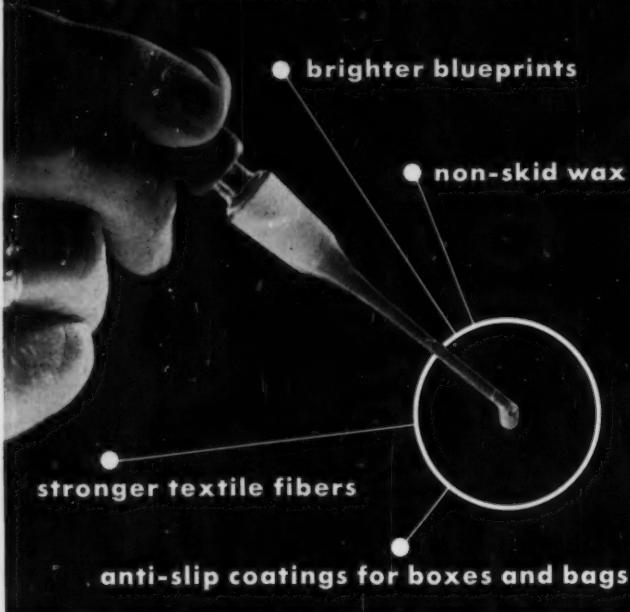
By designing its presses for rapid cake discharge, Read Standard is able to hurdle the normal plate-and-frame press economics. Filtration is stopped when flow rate drops. The press is automatically cleaned, quickly put back in service.

Alexander (Mac) McIntyre, Read Standard's laboratory director, says that a press discharging dry cake will outperform ordinary plate-and-frame presses 30 to 1, rotary vacuum filters 5-8 to 1. For example, in filtering an iron oxide slurry with 25% solids (by weight), the RS dry-cake press pro-

duced 75 lbs./hour of dry solids for each square foot of filter area. A rotary vacuum filter produced 12 lbs./hour of dry solids per square foot of filter area. And, as it was discharged from the press, the cake from the RS filter contained 63% moisture; the rotary filter's contained 70% moisture.

Loose Cake: The key to design and operation of the new presses is in the high flow rate. Solids quickly build up on the cloth, are removed before they become compacted and hard on the cloth and difficult to remove. In normal press operation, as the solids continue to build up and flow rate drops off, the use of additional pressure to force the flow through the press compacts the solids. Often, the flow is too low to keep some portions

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PRODUCTION

of the cake wet, prevent drying and hardening.

Also, as flow rate drops and pressure is increased, some solids are forced into the filter cloth, blinding the openings. Moreover, pressure can cause solid crystals to collapse.

McIntyre, working with Thomas Baxter, experimented with filtration methods that would keep flow rates high, stop the flow as soon as the rate dropped off. They found that as long as the cake isn't compressed, it can be washed and dried evenly and will readily fall away from the filter cloth. One patent (U.S. 2,771,194) was issued on the method in '56. Three additional one's are on file haven't issued.

Wet Cake Press: The new press that produces a cake in wet (slurry) form is used to concentrate liquids with very low solids content for eventual feed to a press that discharges dry cake. In operation, it is similar to a pressure-leaf filter of the sluice type. After the filter cake has been formed, it is washed off the filter cloth.

However, in design the new press is similar to a plate-and-frame press. It is less expensive than a pressure-leaf filter, has individual chambers formed by the recesses in the plates rather than a tank that surrounds the filter leaves. And, it operates on a shorter cycle than the pressure-leaf filter.

As solids build up on the cloths in the chambers, feed pressure builds up and flow rate drops. At a preset pressure or time interval, flow is cut off. The cake is washed off, flows out of the press through openings in the bottom of the chambers. The only wet-cake presses built to date have five chambers, cost around \$3,000.

Dry-Cake Press: The press of more radical design—and the one that will probably find wider use—discharges filter cake in the dry form. It has two filter chambers that are closed by an air-operated piston. The chambers close onto continuous-belt filter cloths, have rubber gaskets at the joints to withstand pressures up to 150 psi., and prevent leakage of liquid. Here's how this unit works:

As the filter cake builds up in the closed press, flow rate drops off and pressure increases. At a preset pressure level or time interval, flow is cut off. The chambers are purged of liquid with air. The cake may then be washed and the chambers purged of wash water with air. The cake is then

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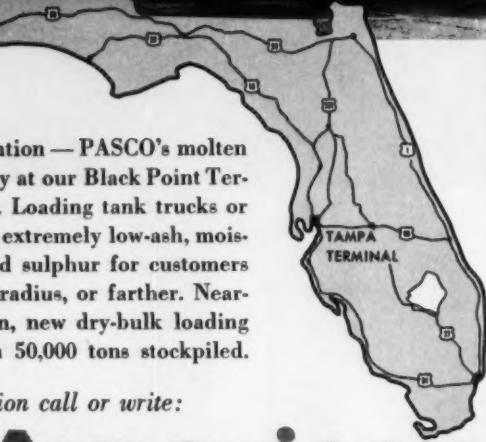




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PRODUCTION

dried with air and the chambers are opened. The continuous-belt filter cloths, traveling over rollers, are set in motion and the cake drops from the cloth.

An average cycle (depending on the type of slurry) takes about 1 minute. The cake usually forms to about $\frac{1}{4}$ -in. thickness in as little as 20 seconds. It takes about five seconds to purge the chambers. Washing time will vary between 15 seconds and four minutes. Drying time (actually only a mechanical dewatering) takes 15-30 seconds. And, cake discharge takes three seconds.

How It Stacks Up: The dry-cake filter will compete mainly with ordinary plate-and-frame presses, according to McIntyre. It will be limited by the type of cake to be collected. A material that isn't easily discharged can be removed by washing or with a knife. "But there will be some cases where we just won't be able to get the cake off," says McIntyre.

"We won't compete very much with rotary filters because their field is generally the more easily-filtered, very-large-volume slurries," McIntyre adds. (Small, pilot-size rotary vacuum filters usually aren't considered for less than 1,500 gal./day of feed; regular models often handle about 30,000 gal./day.)

The RS dry-cake filter costs about \$5,200, has only 1.6 sq.ft. of filter area. On a cost/sq.ft. of filter area basis, the press doesn't stack up well against plate-and-frame press costs of about \$8.9 per sq.ft. But the comparison is not valid. McIntyre's comparison of 30 to 1 performance over a plate-and-frame press is not a precise cost comparison either. And RS won't talk about flow rates in its press, only says they are considerably higher than plate-and-frame's 1 gal./sq.ft./per minute average flow rate.

The \$5,200 unit with a 1.6-sq.ft. filter area is the only one built so far. McIntyre says a unit about twice this size could be built and cost wouldn't double. Also, pressure must be considered as a design factor. The present RS dry-cake press is designed for 150 psi., can't be built with a filter area more than double the present size. But, most filtration jobs won't require more than 50-60 psi. pressure. RS will put out a 60-psi. model that may have an 8-sq.ft. filter area. But two points which definitely favor the RS

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PRODUCTION

press: low labor cost and small floor space requirements.

The Market: If the new RS presses catch on, follow the usual pattern of industry adoption, it will take considerable time to see how they'll affect the filter market, estimated at about \$20 million/year. Plate-and-frame presses make up about \$4 million of the total, the more expensive rotary filters, about \$8 million. Sand filters (mainly used for water clarification), pressure-leaf and other filters for special jobs make up the rest.

New filter units most often get their start in the mining and metallurgical fields where the applications are often similar. In the chemical field, applications are more highly specialized.

Regardless of the shifts in the equipment market, filter makers agree that the plate-and-frame press will continue to hold its own for the filtration of many hard-to-handle slurries. By automating the plate-and-frame press, Read Standard is hoping to brighten its future in the filter field.



Flare with a Bow

The Bowman pictured above is aiming his flaming arrow at a flare tower at British American Oil's gas conservation plant at Nevis, Alta., Canada. Object: to relight the flare, burn off excess gas. The company dipped into Indian lore for the technique, when the flare's mechanical re-lighting device failed.

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Technical Service: An excellent opportunity for young man to join the Technical Department of the expanding Plastics Division of Spencer Chemical Company. This man should have a strong background in chemical engineering or chemistry, with a minimum of three years' experience in the field of polyolefins. He will conduct studies on extrusion and molding of polyolefins and nylon, and have intimate contact with field technical service work. In reply, please send detailed resume of experience, education and salary requirements to: Personnel Manager, Spencer Chemical Company, 610 Dwight Building, Kansas City 5, Missouri.

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Chemist: A successful plastic extrusion manufacturer in Eastern Massachusetts has opening for a degree chemist to assume responsibility of laboratory on formulation, testing, quality control and new product development. Applicant must have industrial experience in thermoplastics. All replies will be held in strict confidence. P-2943, Chemical Week.

SELLING OPPORTUNITY AVAILABLE

Chemical Jobber midwest, fine well-established industrial chemical salesmen. Liberal salary commissions, expenses. Car furnished. Opportunity advancement. Chance to buy into company over the years. If experienced, send resume to SW-2929, Chemical Week. Our employees know of this advertisement.

Some distribution areas left in United States for new type corrosion proof tank liners. A new proven type liner for corrosive solutions. Also distributorships available in several foreign countries. RW-2930, Chemical Week.

POSITION WANTED

Sales Management position in agricultural chemicals or allied desired by aggressive young married man. Several years successful experience with leading Agricultural chemical manufacturer covering Southwest U.S. Prefer same. PW-2837, Chemical Week.

Industrial Chemical Salesman, degree, nine years successful sales exp., solvents, inorganics, plastics, married, age 32, desires responsible sales position. PW-2889, Chemical Week.

Executive Chemist, 20 years experience, industrial and academic. Administration, research, sales and engineering. Technical publications, books and patents. Creative, versatile, resourceful. Available immediately. Please reply to PW-2906, Chemical Week.

MANAGEMENT SERVICES

"In Engineering, It's the People that Count." Engineers and Contractors for the Petroleum and Chemicals Industries. The C.W. Notsinger Co., 307 East 63rd St., Kansas City 13, Mo.

SPECIAL SERVICES

Custom compounding and packaging, bulk or any size containers. West and East Coast plants, liquids, powders, pastes for rail, water or truck shipment. Adequate warehousing. Laboratory for testing and development. The Clarkson Laboratories, Inc., 920 N. Darien Street, Philadelphia 23, Penna. Telephone, Market 7-6764.

BUSINESS OPPORTUNITY

Chemical Company wanted. Well-rated Chemical firm interested in expansion and diversification wishes to acquire company established in Chemical Manufacturing, Distribution and Packaging of products including industrial and compressed gases. Preferably located Penna., N.J., Del., Md. All replies strictly confidential. BO-2937, Chemical Week.

FOR SALE

\$3,000,000 Liquidation-Chemical Plant at Orange, Texas. Type 316 Stainless Steel Tanks, Kettles, Heat Exchangers, Columns, Stills, Crystallizers, Centrifugals, Pumps, Valves, etc. Wonderful Values. Send for list. Perry Equipment Corp., 1415 N. 6th St., Philadelphia 22, Pa.

Phthalic Anhydride (Crude) 1 Million Pounds Available. If you have stainless or wooden extraction and filtering equipment, we can supply over 2,000,000 lbs. of 50% Phthalic Anhydride. You can purchase crude or extract and resell Phthalic Acid to us. FS-2899, Chemical Week.

Powdered soluble Saccharin (U.S.P.). Packed in 100# drums. High Quality. Moderately Priced. Chemical Advance Corporation, 1343 Arch Street, Philadelphia 7, Pa., Phone: Locust 3-1730.

Dark Low Cost Varnish 100,000 Gals. Suitable for Barn Paints, Trim Paints, etc. 50% solids in Mineral Spirits. \$0.05/lb. or \$27/gal. F.O.B. Metropolitan New York in tank cars, tank wagons, or your drums. FS-2942, Chemical Week.

(2) 96" dia. Vulcan T316 SS Bubble Cap Columns, 30 trays, 272 caps per tray. Perry Equipment Corp., 1415 N. Sixth St., Phila. 22, Pa.

Condenser Stainless 316; Capacity 100 square feet; 13 foot long. H & N Chemical Co., Paterson 4, N.J.

New 420 Sq. Ft. Condenser. Stainless tube side. ASME stamped. Cancellation results in excellent price. FS-2934, Chemical Week.

Bakelite BR-9432 Resin (Phenol-Formaldehyde) (Orig. Blbs.) \$.33/lb. Carbon Tetrachloride Redist. & Restabilized \$.075/lb. (Bulk). Barium Hydrox. N.F. (J.T. Baker Orig.) 15 Leverpaks \$.06/lb. Lacquer Thinner, Off Color \$.25/gal. (Bulk). Triethylene Glycol Dicaprylate 10 drums \$.18/lb. 30% Phthalic—70% Soya 10 drums \$.12/lb. Toluol 10,000 gals. \$.20/gal. Aluminum Paste (suitable for root coating) \$.20/lb. Type "S" Anti-Freeze \$.39/gal. (in drums). 30,000 lbs. Diethyl Sebacate, Bulk \$.35/lb. 2 orig. drs. Polyethylene Gly. 1000, Monostearate \$.20/lb. 3 orig. drs. Barrett Pyridine 15A \$.35/lb. FS-2928, Chemical Week.

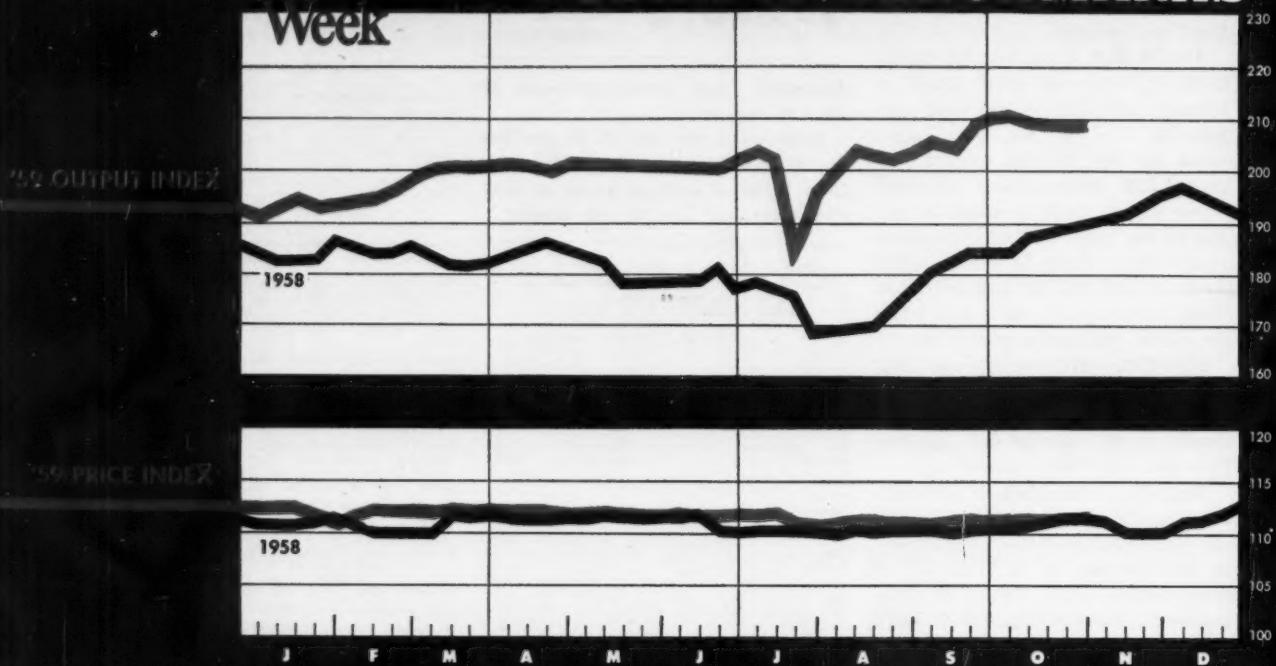
MISCELLANEOUS

To Employers Who Advertise for Men: The letters you receive in answer to your advertisements are submitted by each of the applicants with the hope of securing the position offered. When there are many applicants it frequently happens that the only letters acknowledged are those of promising candidates. (Others do not receive the slightest indication that their letters have even been received, much less given any consideration.) These men often become discouraged, will not respond to future advertisements and sometimes even question if they are bona fide. We can guarantee that Every Advertisement Printed Is Fully Authorized. Now won't you help keep our readers interested in this advertising by acknowledging every application received, even if you only return the letters of unsuccessful applicants to them marked say, "Position filled, thank you." If you don't care to reveal your identity, mail them in plain envelopes. We suggest this in a spirit of helpful co-operation between employers and the men replying to Positions Vacant advertisements. Classified Advertising Division, McGraw-Hill Publishing Company. "Put Yourself in the Place of the Other Fellow."

Chemical

BUSINESS BENCHMARKS

week



OCTOBER 31, 1959

WEEKLY BUSINESS INDICATORS

Chemical Week output index (1947-1949=100)
Chemical Week wholesale price index (1947=100)
Stock price index (12 firms, Standard & Poor's)
Steel ingot output (thousand tons)
Electric power (million kilowatt-hours)
Crude oil and condensate (daily av., thousand bbls.)

	Latest Week	Preceding Week	Year Ago
Chemical Week output index (1947-1949=100)	111.5	111.5	110.9
Chemical Week wholesale price index (1947=100)	209.5	210.0	190.3
Stock price index (12 firms, Standard & Poor's)	57.68	57.87	46.17
Steel ingot output (thousand tons)	371	368	2,026
Electric power (million kilowatt-hours)	12,861	13,086	12,048
Crude oil and condensate (daily av., thousand bbls.)	6,839	6,809	6,893

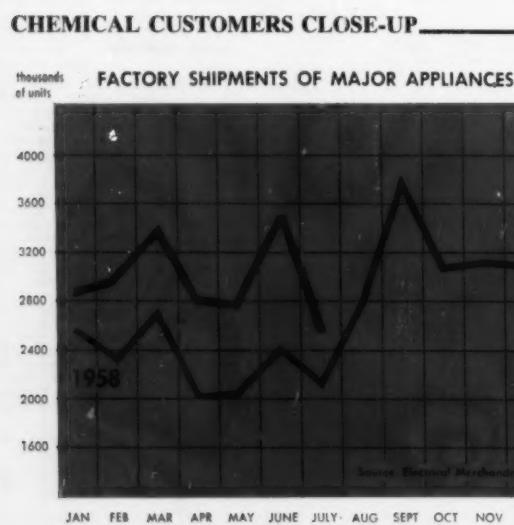
FOREIGN TRADE INDICATORS

Chemicals, total
Coal-tar products
Industrial chemicals
Medicinals and pharmaceuticals
Fertilizers and materials
Vegetable oils and fat (inedible)

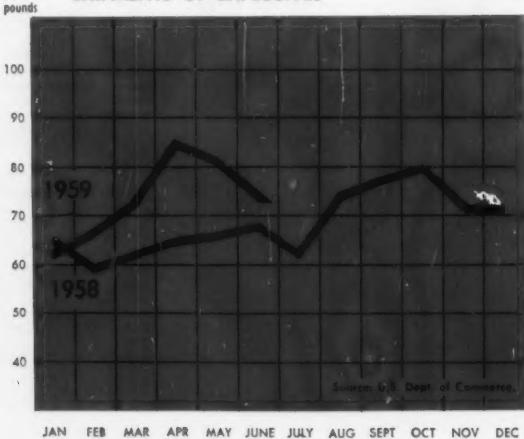
IMPORTS

Latest Month	Preceding Month	Year Ago	Latest Month	Preceding Month	Year Ago
\$123.1	\$122.9	\$109.7	\$28.2	\$27.8	\$22.8
8.5	7.8	8.2	2.6	3.5	6.1
22.1	19.3	16.2	8.8	9.4	6.3
20.9	26.1	21.7	1.5	1.8	1.3
8.1	8.8	8.1	8.7	6.1	7.2
10.4	14.2	9.0	6.6	7.7	5.9

EXPORTS



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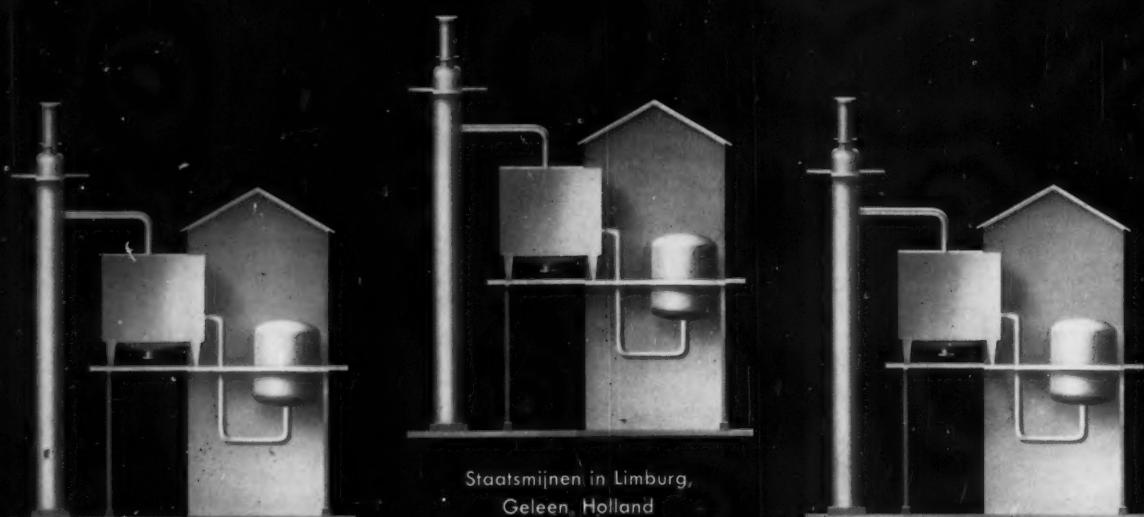
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